ORDER NO. KMS9808296C2

Service Manual

DIGITAL PROPRIETARY TELEPHONE
FOR DIGITAL SUPER HYBRID SYSTEM

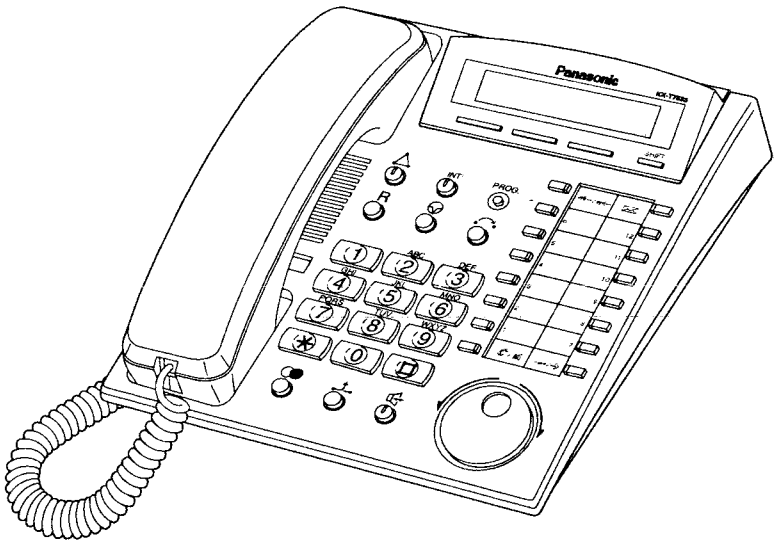
KX-T7533G

White Version

KX-T7533G-B

Black Version

(for Germany)



■ SPECIFICATIONS

Station Loop Limit:	40 ohms
Cabling Method:	2 pair wire
Jacks:	PABX, Handset/Headset, Telephone
Display:	16 digits (max.)
Dimensions:	224 (W)×88 (H)×265 (D) mm with handset
Weight:	1.2 kg

Design and specifications are subject to change without notice.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians.
Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

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When you note the serial number, write down all of the 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

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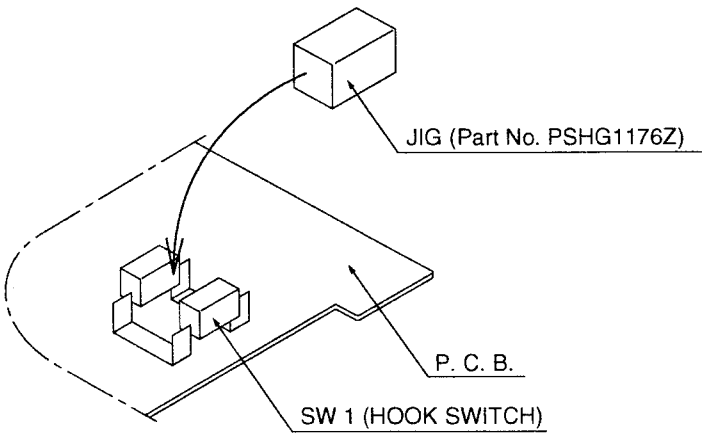
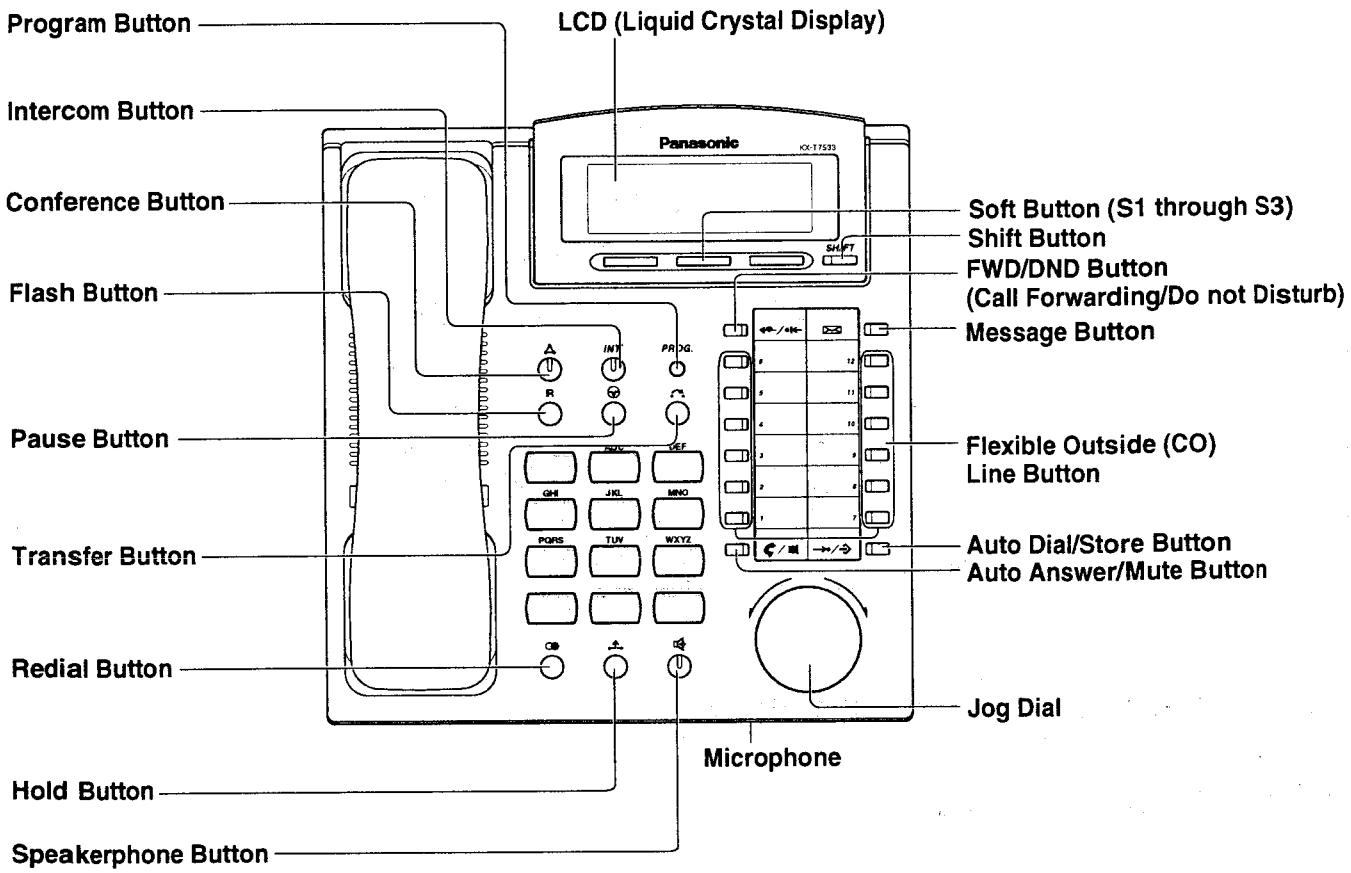
FOR SERVICE TECHNICIANS

1. Note the following items when exchanging the LEDs (Ref. No. D100-117, 130, 201) of Dial P.C. Board.
   1) Do not reuse a LED which is removed from the P.C. Board.
   2) Use a soldering iron (less than 15 W) for exchanging LED.
   3) Do not heat the LED for more than 2 seconds.
   4) Do not move the LED after soldering.

2. This unit employs the switch which is influenced by the light for the hook switch. When you open the cabinet to repair the unit in the bright light, the hook switch might work improperly. Therefore, take care not to shine the hook switch directly, or use the jig as shown below.



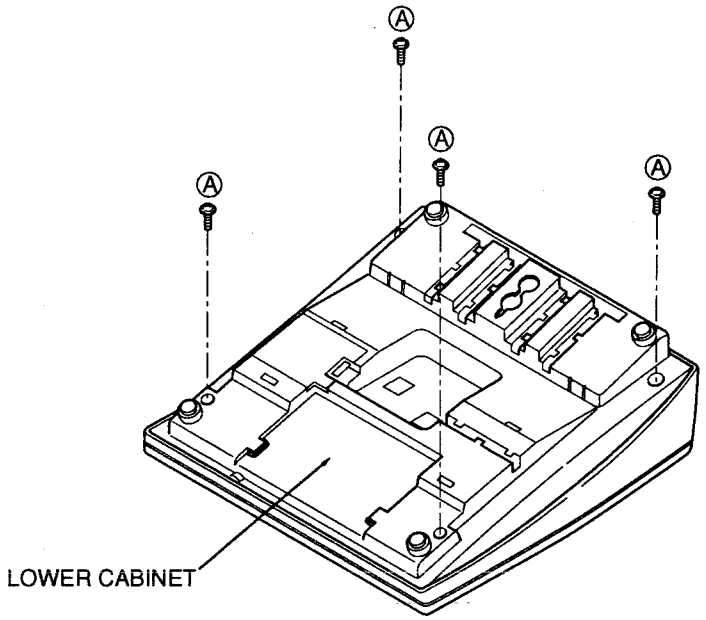
LOCATION OF CONTROLS



DISASSEMBLY INSTRUCTIONS

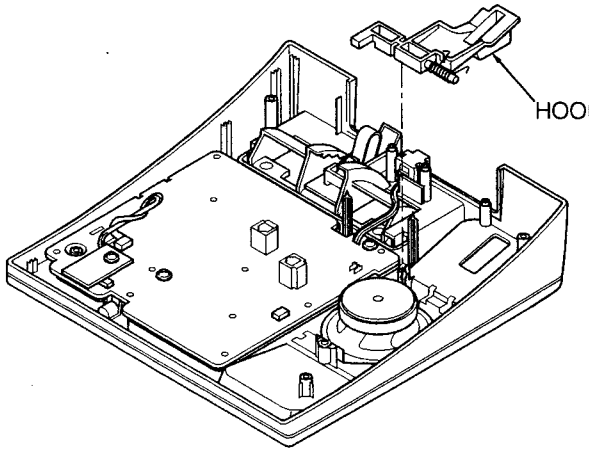
No. 1	HOW TO REMOVE THE LOVER CABINET
Procedure 1	

1) Remove the 4 screws(Ⓐ).
2) Remove the lower cabinet.

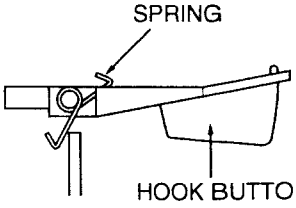


No. 2	HOW TO REMOVE THE HOOK BUTTON
Procedure 1→2	

1) Remove the hook button.



HOW TO ATTACH THE SPRING



No. 3	HOW TO REMOVE THE SWITCH AND MAIN BOARDS

Procedure 1→2→3

1) Remove the screw Ⓐ.
2) Pull out the switch board connector.
3) Remove the switch board.
4) Pull out the flat cable.
5) Remove the 2 screws Ⓑ.
6) Pull out the speaker and microphone connectors.
7) Remove the main board.

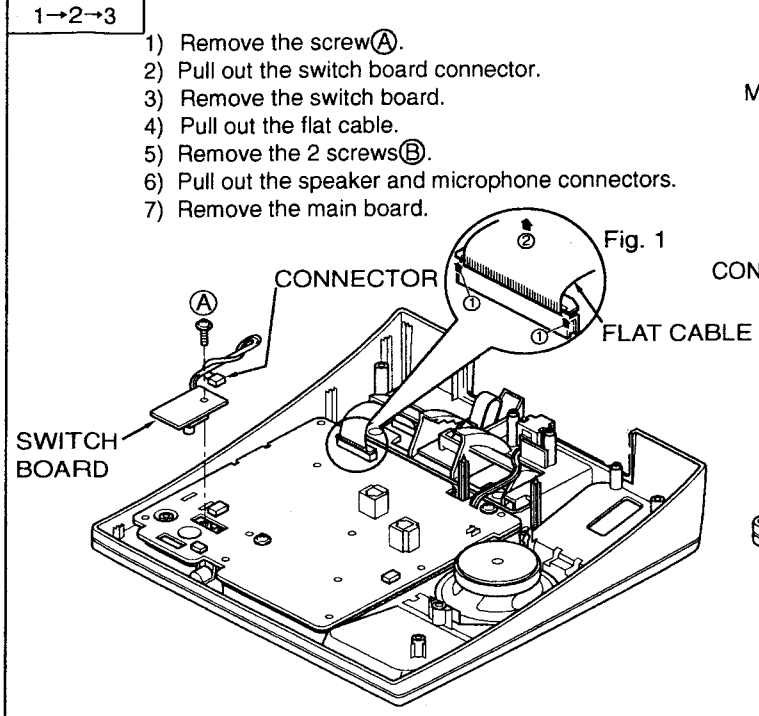
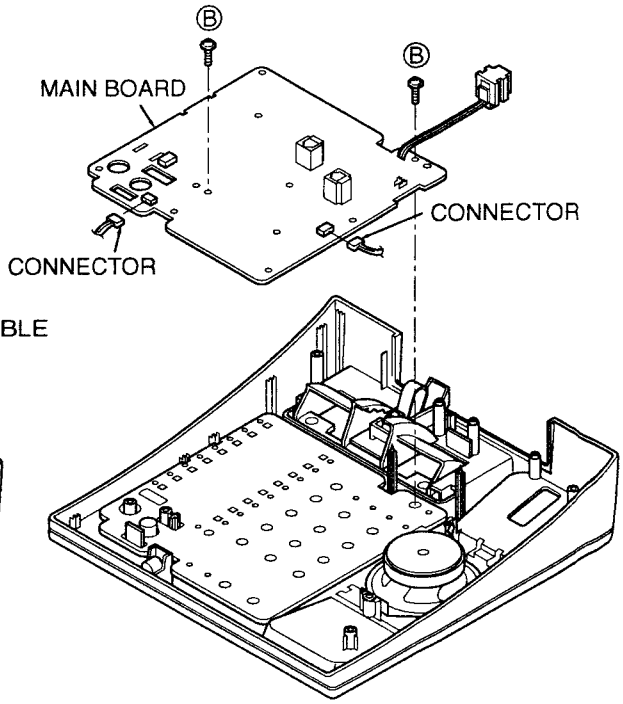


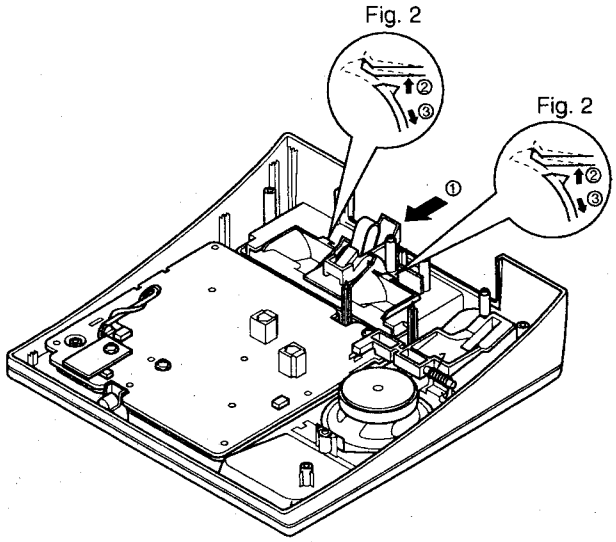
Fig. 1

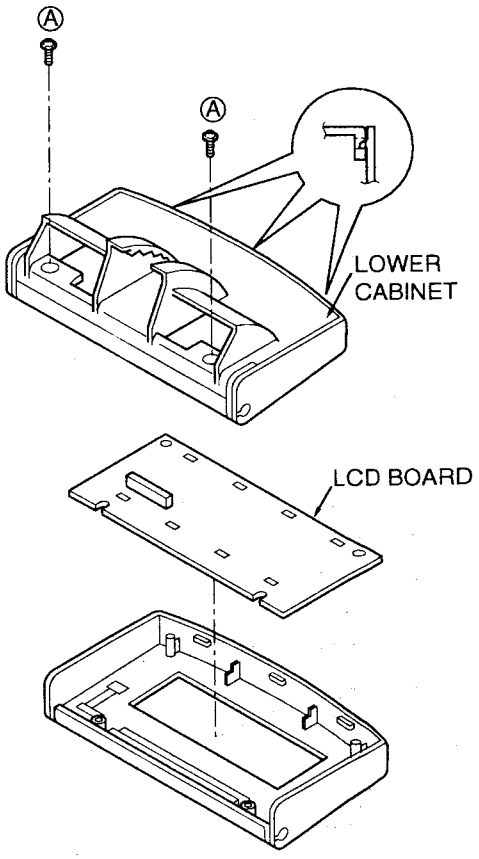


No. 4	HOW TO REMOVE THE LCD BOARD

Procedure 1→4

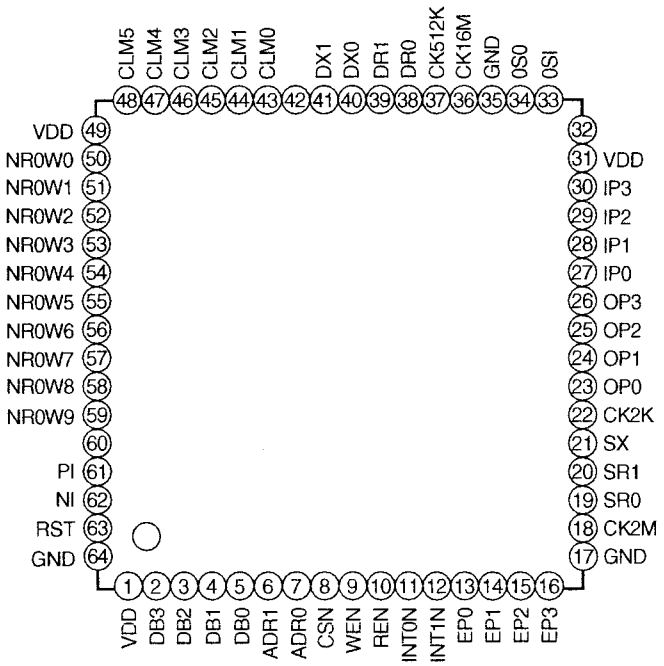
1) Pull out the flat cable. (See Fig. 1)
2) Remove the LCD block. (See Fig.2)
3) Remove the 2 screws Ⓐ.
4) Remove the lower cabinet.
5) Remove the LCD board.





IC DATA

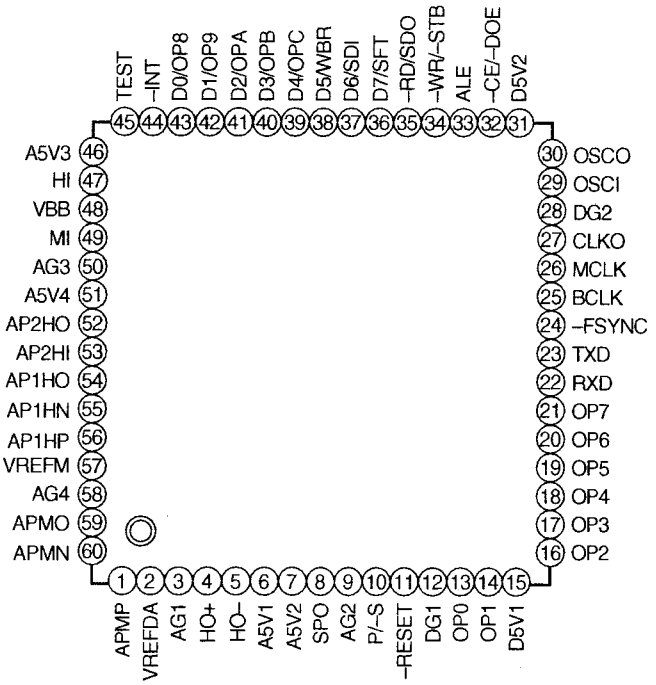
1. IC1



Name	Pin	Dir.	Pull Up	Type	Io	Act.	Block	MHz	Descriptions
DB3	2	bidir	---	TTL	8.0mA	high	PT5B03	2.0	Data Bus [3]
DB2	3	bidir	---	TTL	8.0mA	high	PT5B03	2.0	Data Bus [2]
DB1	4	bidir	---	TTL	8.0mA	high	PT5B03	2.0	Data Bus [1]
DB0	5	bidir	---	TTL	8.0mA	high	PT5B03	2.0	Data Bus [0]
ADR1	6	input	12-38k	TTL	---	high	PT5D01U	2.0	Address Bus [1]
ADR0	7	input	12-38k	TTL	---	high	PT5D01U	2.0	Address Bus [0]
CSN	8	input	---	TTL	---	low	PT5D01	1.0	Chip Select
REN	10	input	12-38k	TTL	---	low	PT5D01U	2.0	Read Enable Command
WEN	9	input	12-38k	TTL	---	low	PT5D01U	2.0	Write Enable Command
RST	63	input	---	CMOS schmidt	---	high	PC5D21	0.01	Asynchronous Reset Input
INT0N	11	output	---	CMOS	2.0mA	low	PC5O01	0.01	Interrupt Request
INT1N	12	output	---	CMOS	2.0mA	low	PC5O01	0.01	Interrupt Request
DR0	38	input	---	CMOS	---	low	PC5D01	0.6	Dpits Receive Data [1]
DR1	39	input	---	CMOS	---	low	PC5D01	0.6	Dpits Receive Data [0]
DX0	40	output	---	CMOS	4.0mA	low	PC5O02	0.6	Dpits Transmit Data [1]
DX1	41	output	---	CMOS	4.0mA	low	PC5O02	0.6	Dpits Transmit Data [0]
CK512K	37	output	---	CMOS	2.0mA	high	PC5O01	0.6	Dpits Bit Rate Clock
SR0	19	input	12-38k	TTL	---	high	PT5D01U	0.1	Serial Receive Data Stream [0]
SR1	20	input	12-38k	TTL	---	high	PT5D01U	0.1	Serial Receive Data Stream [1]
SX	21	output	---	CMOS	4.0mA	high	PC5O02	0.1	Serial Transmit Data Stream
CK2M	18	output	---	CMOS	4.0mA	high	PC5O02	2.1	Serial Stream Clock
EP0	13	output	---	CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [0]
EP1	14	output	---	CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [1]
EP2	15	output	---	CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [2]

Name	Pin	Dir.	Pull Up	Type	Io	Act.	Block	MHz	Descriptions
EP3	16	output	---	CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [3]
PI	61	input	---	CMOS schmidt	---	high	PC5D21	0.01	Rotary Encoder Input [Pos]
NI	62	input	---	CMOS schmidt	---	high	PC5D21	0.01	Rotary Encoder Input [Neg]
CLM0	43	output	---	CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [0]
CLM1	44	output	---	CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [1]
CLM2	45	output	---	CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [2]
CLM3	46	output	---	CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [3]
CLM4	47	output	---	CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [4]
CLM5	48	output	---	CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [5]
NROW0	50	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [0]
NROW1	51	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [1]
NROW2	52	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [2]
NROW3	53	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [3]
NROW4	54	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [4]
NROW5	55	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [5]
NROW6	56	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [6]
NROW7	57	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [7]
NROW8	58	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [8]
NROW9	59	output	---	CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [9]
IP0	27	input	12-38k	CMOS	---	high	PC5D01U	0.01	Input Port [0]
IP1	28	input	12-38k	CMOS	---	high	PC5D01U	0.01	Input Port [1]
IP2	29	input	12-38k	CMOS	---	high	PC5D01U	0.01	Input Port [2]
IP3	30	input	12-38k	CMOS	---	high	PC5D01U	0.01	Input Port [3]
OP0	23	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [0]
OP1	24	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [1]
OP2	25	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [2]
OP3	26	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [3]
CK2K	22	output		CMOS	4.0mA	high	PC5O02	0.20	2kHz Clock Output (duty25%)
CK16M	36	output	---	CMOS	2.0mA	high	PC5O01	16.4	Master Clock Out
OSI	33	input	---	Analog	---	---	PC5X02	16.4	X'tal In (XIN)
OSO	34	output	---	Analog	---	---	PC5X02	16.4	X'tal Out (XOUT)
N.C.	32								not used
N.C.	42								not used
N.C.	60								not used
VDD1	1	vdd							Vdd (5V)
VDD2	31	vdd							Vdd (5V)
VDD3	49	vdd							Vdd (5V)
VSS1	17	vss							Vss (GND)
VSS2	35	vss							Vss (GND)
VSS3	64	vss							Vss (GND)

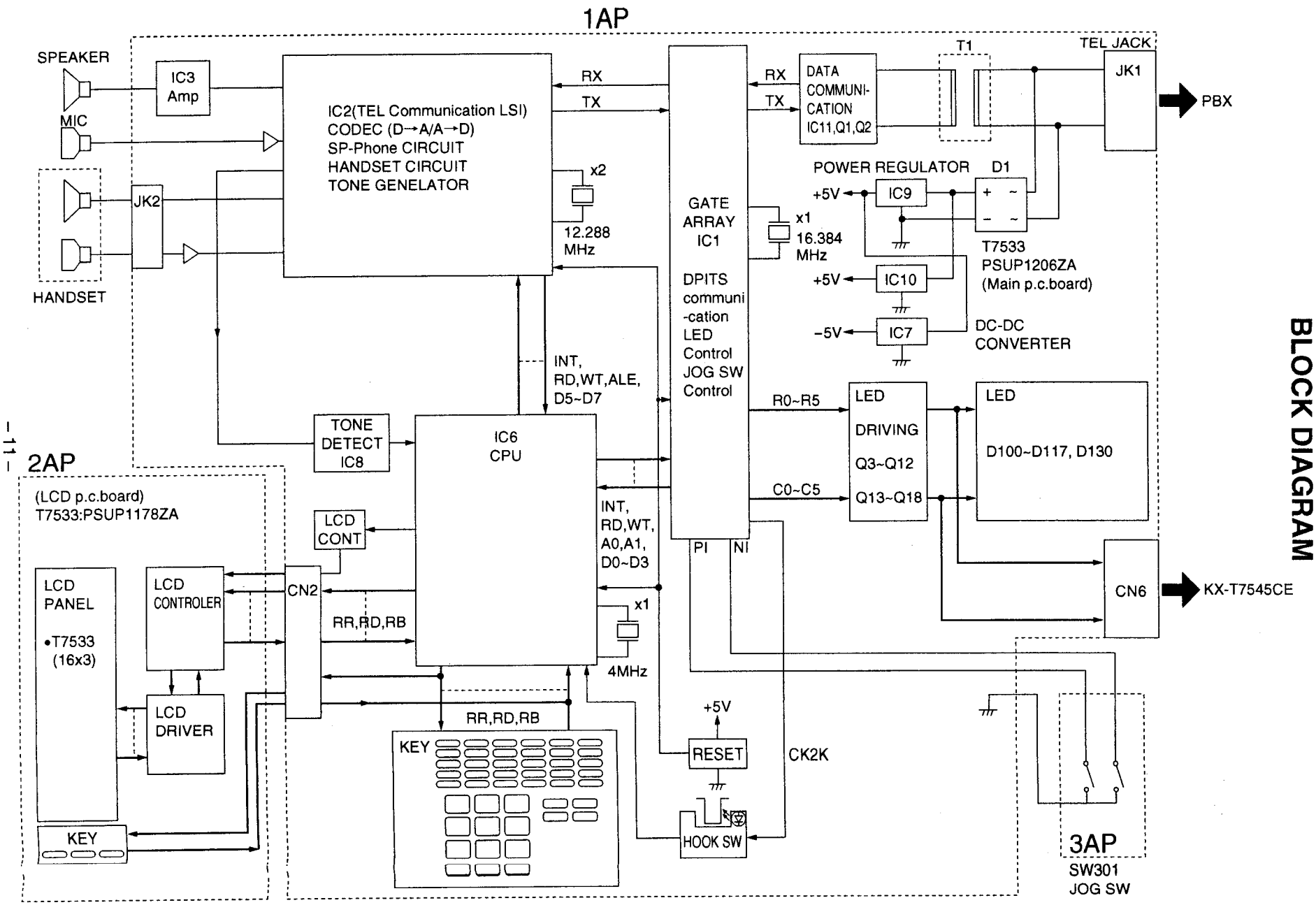
2. IC2



Name	NO.	I/O	Classification	Function
APMP	1	Analog input	Analog	Non-inverting input terminal of microphone amplifier M1. Connect to the microphone.
VREFDA	2	---	Power supply, etc.	Reference voltage terminal of DAC. Connect the capacitor of 40µF between this terminal and pin 9(AG2).
AG1	3			Ground terminal of the analog circuit.
HO+	4	Analog output	Analog	Output terminal for the handset receiver. HO+ terminal and HO– terminal are biased to Vdd/2 voltage. HO– terminal is the inverse porality output terminal for pin 4 (HO+). Connect the capacitor in series between the handset and these terminals to cut the DC . Use the nonpolar type capacitor.
HO–	5			
A5V1	6	---	Power supply, etc.	5V power supply terminal of analog circuit.
A5V2	7			
SPO	8	Analog output	Analog	Output terminal for the speaker amplifier. Connect to the external speaker amplifier input terminal. SPO terminal is biased to Vdd/2 voltage. Connect the capacitor of 0.1µF in series between the external speaker amplifier input terminal and this terminal.
AG2	9	---	Power supply, etc.	Ground terminal of the analog circuit.
P/–S	10	CMOS input	Micro-computer interface	Mode selection terminal of microcomputer interface. Inputting "0" selects the serial mode, and "1" selects the parallel mode.
–RESET	11			System reset terminal. The system is reset when "0" is pressed.
DG1	12	---	Power Supply, etc.	Ground terminal of the digital circuit.

Name	NO.	I/O	Classification	Function
OP0	13	3 states output	Output port	Outputs BIT0 signal of OPORT1 resistor.
OP1	14			Outputs BIT1 signal of OPORT1 resistor.
D5V1	15	---	Power Supply, etc.	5V power supply terminal of digital circuit.
OP2	16	3 states output	Output port	Outputs BIT2 signal of OPORT1 resistor.
OP3	17			Outputs BIT3 signal of OPORT1 resistor.
OP4	18			Outputs BIT4 signal of OPORT1 resistor.
OP5	19			Outputs BIT5 signal of OPORT1 resistor.
OP6	20			Outputs BIT6 signal of OPORT1 resistor.
OP7	21			Outputs BIT7 signal of OPORT1 resistor.
RXD	22	TTL input	PCM interface	Input terminal for PCM data
TXD	23	Output		Output terminal for PCM data
–FSYNC	24	TTL input		Input terminal of Sync. signal for PCM interface. The frequency of input sync. signal is 8 kHz.
BCLK	25			Input terminal of shift clock pulse for PCM data. Input pulse frequency range is 64 kHz~2.048 MHz. PCM data (TXD terminal signal) is output at the positive edge. PCM data (RXD terminal signal) is sampled at the negative edge. The sampling is performed inside LSI.
MCLK	26	Output	Clock	Clock pulse output terminal. Output pulse frequency is 6.144MHz. System reset (inputting "0" to –RESET terminal) doesn't stop this output.
CLKO	27			Clock pulse output terminal which has selective frequencies. The following 4 frequencies can be selected by resistor setting: 12.228, 4.096, 2.048, 1.536 (MHz) System reset (inputting "0" to –RESET terminal) selects the frequency of 1.536MHz and doesn't stop this output.
DG2	28	---	Power supply, etc.	Ground terminal of digital circuit.
OSCI	29	---	Clock	Input terminal of oscillation circuit. Connect the oscillator and resistor between this terminal and pin 30(OSCO), moreover, connect the capacitor between this terminal and digital ground to make the oscillation circuit.
OSCO	30	---		Output terminal of oscillation circuit. Connect the oscillator and resistor between this terminal and pin 29 (OSCI), moreover, connect the capacitor between this terminal and digital ground to make the oscillation circuit.
D5V2	31	---	Power supply, etc.	5V power supply terminal of digital circuit.
–INT	44	Output	Micro-computer interface	Outputs 8 kHz clock pulse which is synchronized with –FSYNC.
TEST	45	CMOS input	Power supply, etc.	Test terminal Connect to the digital ground.
A5V3	46	---		5V power supply terminal of analog circuit.
HI	47	Analog input	Analog	Input terminal of TX handset signal. Either this signal or the signal supplied to pin 49 (HI) is input to AD converter.
VBB	48	---	Power supply, etc.	Reference voltage terminal of AD converter. Connect the capacitor of 10µF between VBB terminal and pin 50 (AG3).

Name	NO.	I/O	Classification	Function
MI	49	Analog input	Analog	Input terminal of TX microphone signal. Either this signal or the signal supplied to pin 47 (HI) is input to AD converter.
AG3	50	---	Power supply, etc.	Ground terminal of analog circuit.
A5V4	51			5V power terminal of analog circuit.
AP2HO	52	Analog output	Analog	Output terminal of microphone amplifier H2. Connect the capacitor of 0.1µF to this terminal to cut the DC.
AP2HI	53	Analog input		Inverting input terminal of microphone amplifier H2. Connect the capacitor of 0.1µF to this terminal to cut the DC.
AP1HO	54	Analog output		Output terminal of microphone amplifier H1. Connect the capacitor of 0.1µF to this terminal to cut the DC.
AP1HN	55	Analog input		Inverting input terminal of microphone amplifier H1. Connect to the handset.
AP1HP	56	Analog input	Analog	Non-inverting input terminal of microphone amplifier H1.
VREFM	57	---	Power supply, etc.	Reference voltage terminal of microphone amplifier. Connect the capacitor of 40 µF between this terminal and pin 56 (MICG).
AG4	58			Ground terminal of analog circuit.
APMO	59	Analog output	Analog	Output terminal of microphone amplifier. Connect the capacitor of 0.1µF to this terminal to cut the DC.
APMN	60	Analog input		Non-inverting input terminal of microphone amplifier M.


1AP
SPEAKER
MIC
HANDSET
IC3 Amp
JK2
IC2(TEL Communication LSI)
CODEC (D→A/A→D)
SP-Phone CIRCUIT
HANDSET CIRCUIT
TONE GENELATOR
RX
TX
x2
12.288 MHz
GATE ARRAY IC1
DPITS communi-cation LED Control JOG SW Control
x1
16.384 MHz
DATA COMMUNI-CATION IC11,Q1,Q2
T1
TEL JACK
JK1
PBX
POWER REGULATOR
D1
+5V
IC9
IC10
IC7
-5V
T7533 PSUP1206ZA (Main p.c.board)
DC-DC CONVERTER
INT, RD,WT,ALE, D5~D7
TONE DETECT IC8
IC6 CPU
R0~R5
C0~C5
LED DRIVING Q3~Q12 Q13~Q18
LED D100~D117, D130
CN6
KX-T7545CE
PI
NI
INT, RD,WT, A0,A1, D0~D3
x1
4MHz
2AP
(LCD p.c.board)
T7533:PSUP1178ZA
LCD CONT
LCD PANEL
•T7533 (16x3)
LCD CONTROLER
LCD DRIVER
CN2
RR,RD,RB
KEY
RESET
CK2K
HOOK SW
3AP
SW301
JOG SW

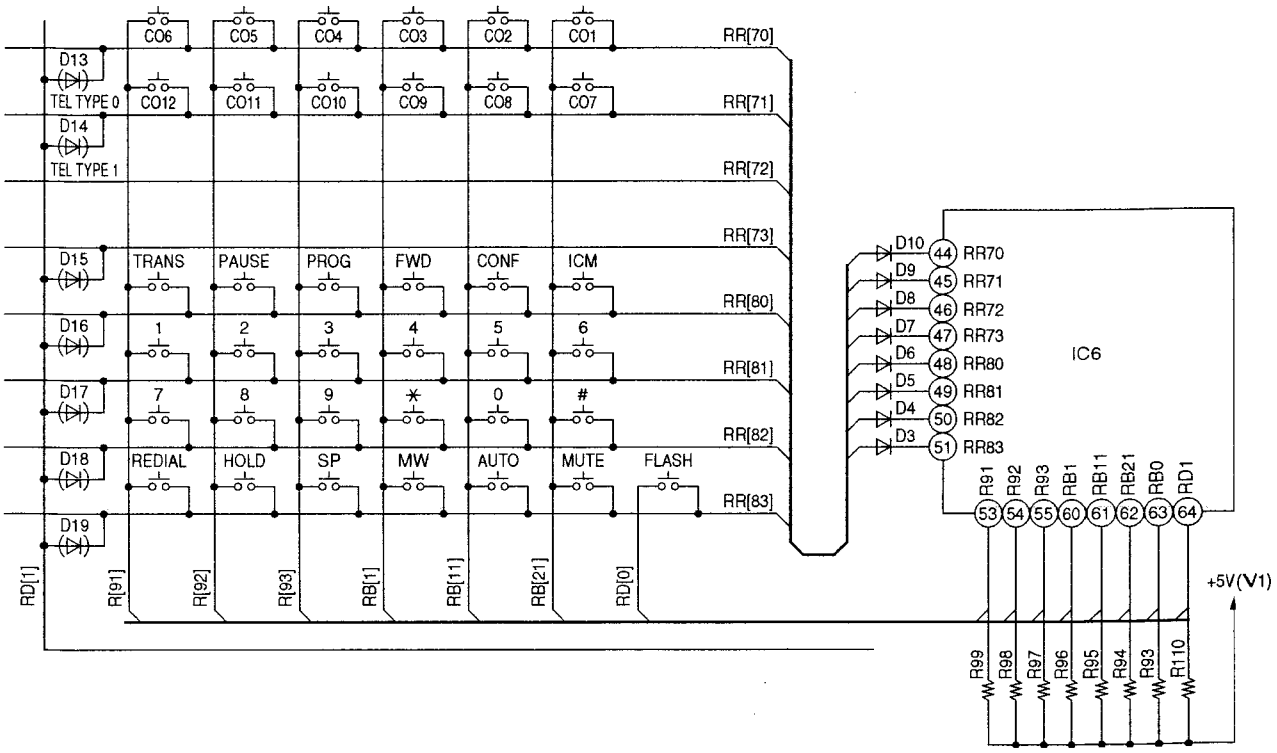
CIRCUIT OPERATIONS

1. KEY INPUT CONTROL CIRCUIT

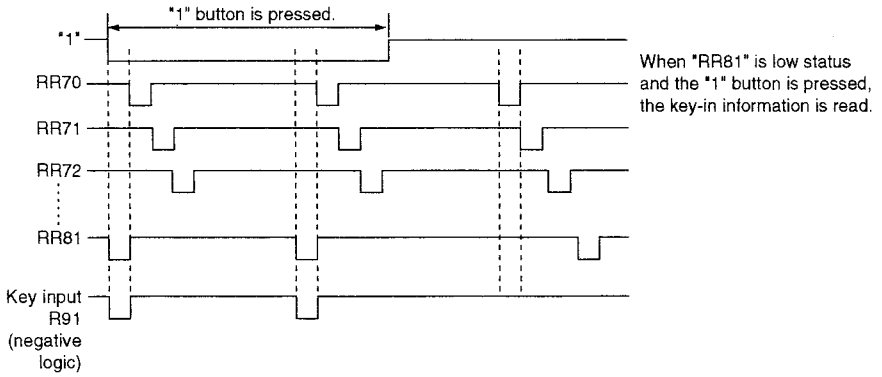
1) Circuit Operation

Sequential input information (negative logic) from the DSHS proprietary telephone is executed by dynamic scanning.
The ports RR70 to RR73, RR80 to RR83 of IC8 are brought to low status consecutively.
If a key is pressed, the key-in information input is executed by ports R91 to R93, RB1, RB11, RB21, RB0, RD1.

Circuit Diagram



Key Input Control Timing Chart

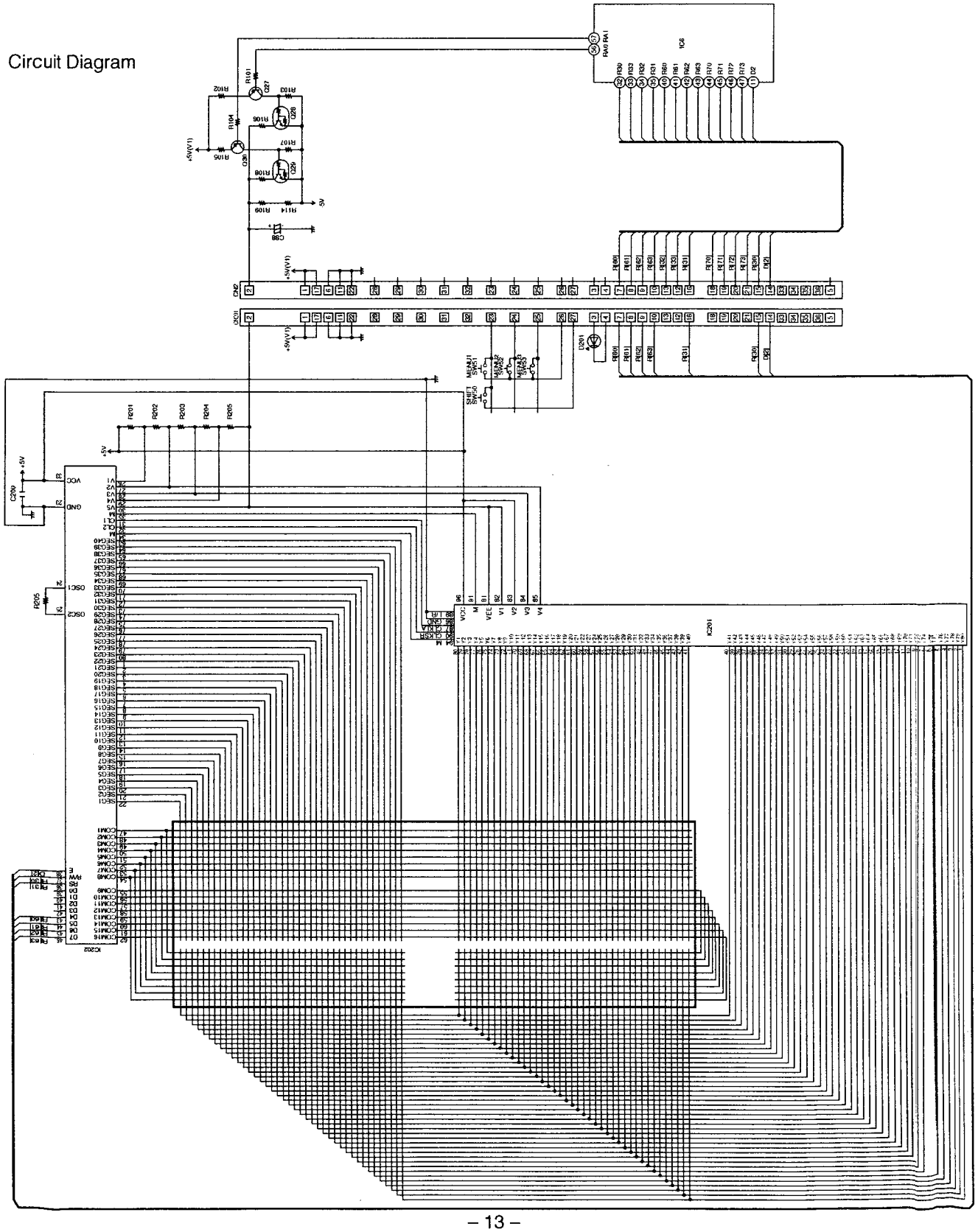


2. LCD CONTROL CIRCUIT

1) Circuit Operation

The LCD data is output from pins 32 to 35, 40 to 47 and 11 of IC6. LCD contrast adjustment is performed by the circuit composed of Q28, Q29, R109, R108 and R106. The contrast is determined only by the voltage level between V5 and VEE of IC202 and IC201. Higher potential makes the contrast high.

Circuit Diagram



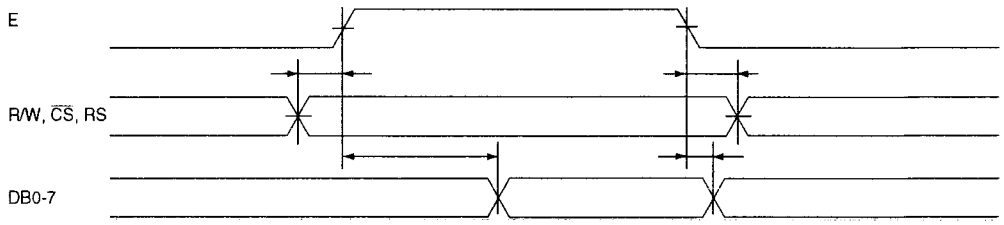
LCD Contrast Control

CONTRAST	IC9 Pin 56	IC9 Pin 57
HIGH	H	L
MIDDLE	L	H
LOW	H	H

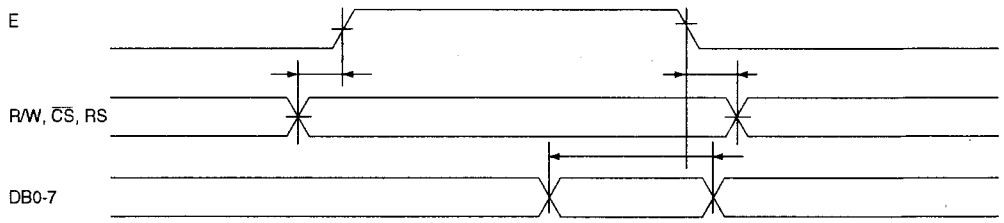
4-bit Data Transfer Timing Sequence

Data Transfer Timing Sequence

READ CYCLE



WRITE CYCLE



3. LED CIRCUIT

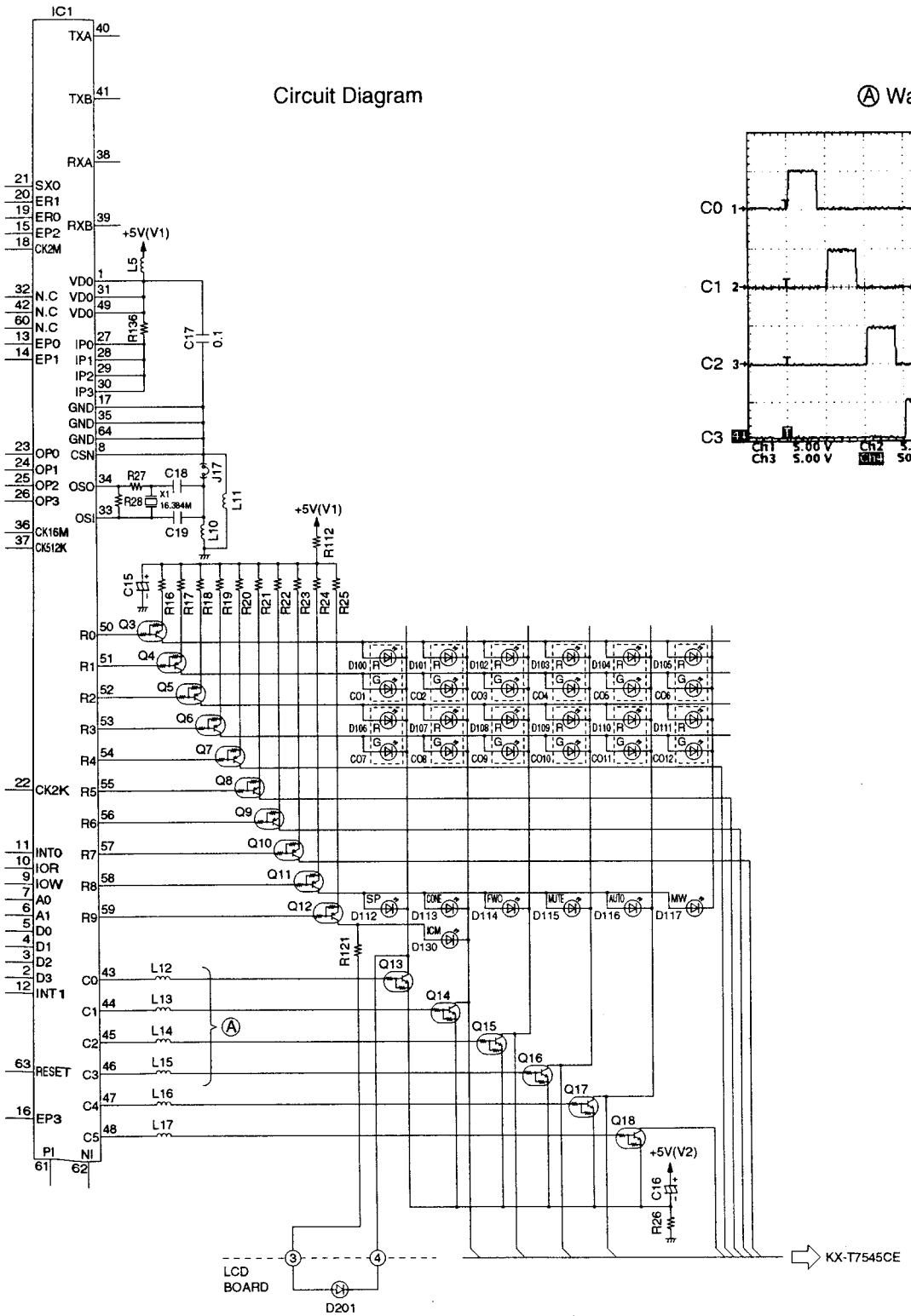
1) Circuit Operation

The LED executes dynamic lighting for the status indicators, and control is executed by the output ports C0 to C5 (column) and R0 to R9 of IC1.

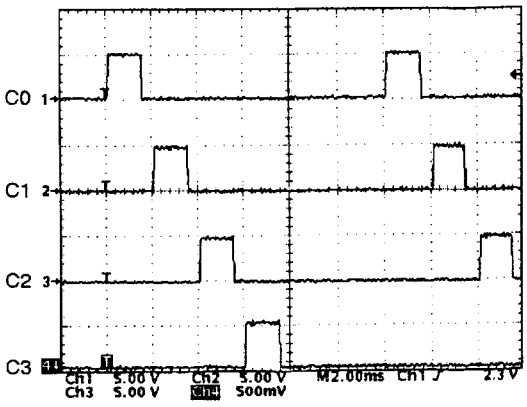
A fixed pulse (T=1.82 msec) is output continuously from the/SCK1 terminal of IC9. This pulse is counted and the output of IC1 is shifted sequentially from C0 to C5.

R0 to R7 of IC1 also output pulses, and the lighting of the LED is controlled by the timing of the output ports C0 to C5.

Circuit Diagram



Ⓐ Waveform



4. DATA COMMUNICATION CIRCUIT

1) Function

The data communication circuit serves the following functions:
Information exchanger between the DSHS and DSHS proprietary telephone, key input information as well as data for the LED control, LCD control, etc. This information is continuously exchanged at all times.

2) Circuit Operation

When the DSHS proprietary telephone receives an IRQ signal from the DSHS and after sending the key input information to the DSHS and receiving data for the LED control, etc., the DSHS proprietary telephone will return to the DSHS an acknowledge signal.

3) Reception

The data from the DSHS is received via the H and L lines along the path shown below.

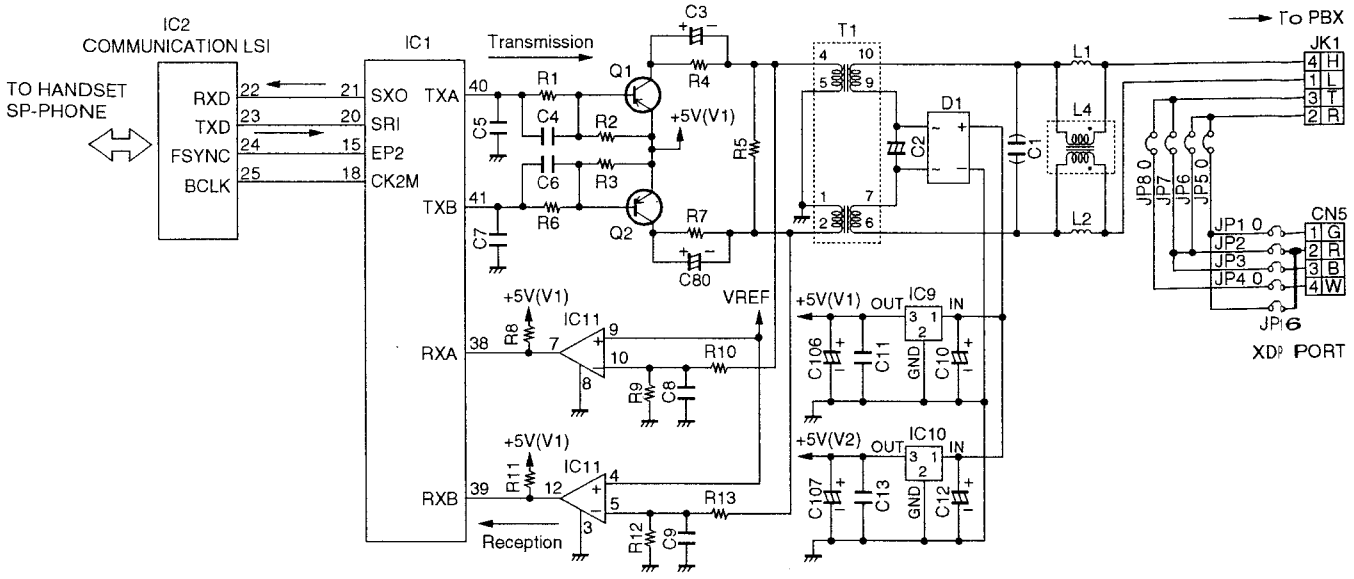
H, L Line → T1 → IC11 Pin 5, 10 → IC1 Pin 38, 39 → IC1 Pin 21 → IC2 Pin 22

4) Transmission

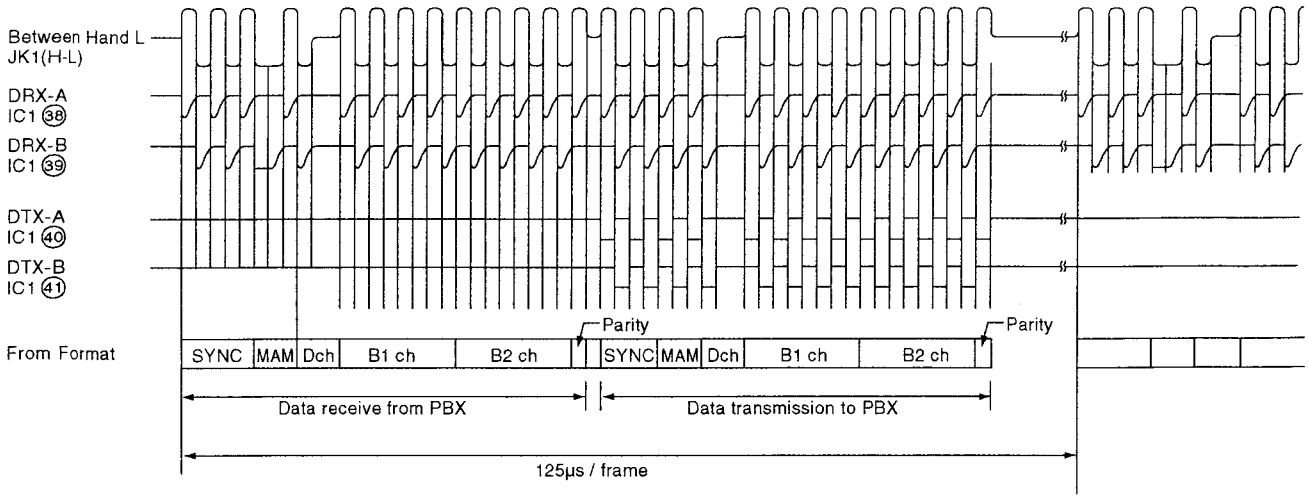
The data to the DSHS proprietary telephone is transmitted along the following path.

IC2 Pin 23 → IC1 Pin 20 → IC1 Pin 40, 41 → Q1, Q2 → T1 → H, L Line

Circuit Diagram



Timing Chart for D-PITS Transmission

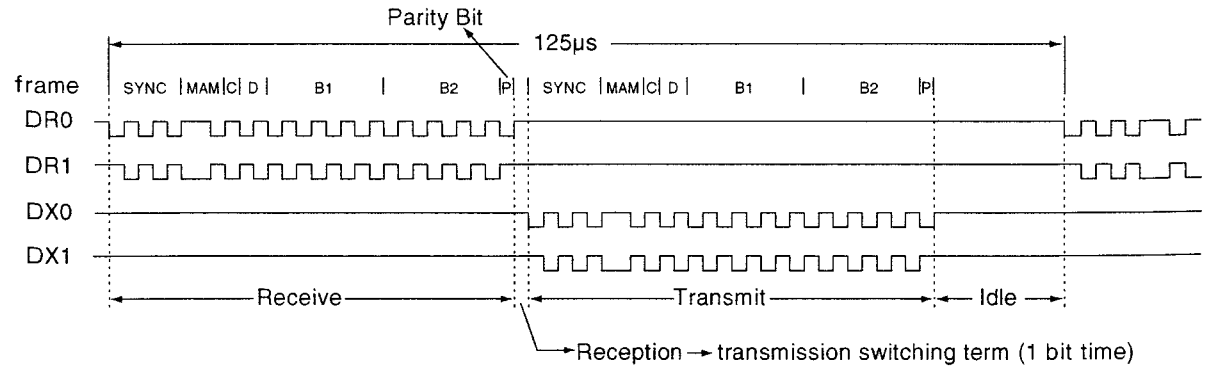


5) IC1 (GATE ARRAY) DPITS Interface

DPITS Layer 1 interface. DR [1:0] is receiving input and DX [1:0] is transmitting output.

Layer 1 is the transmission method of Ping-Pong type which is AMI encoded. "SYNC/MAMC/D/B1/B2/P" data is received in the first half at 125us/frame. After 1 bit time has passed since receiving P data, "SYNC/MAM/C/D/B1/B2/P" is transmitted. 1 bit time is 512kHz. 7-bit time idle term comes after receiving P data.

Dpits Frame Timing



6) PCM interface (between IC1 and IC2)

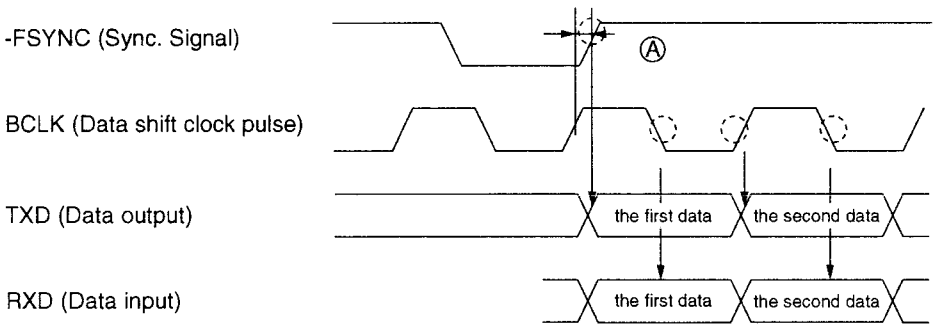
PCM interface consists of following 4 terminals.

PCM interface terminal

–FSYNC	8kHz sync. signal input terminal	BCLK	PCM data shift clock input terminal
TXD	TXD data output terminal	RXD	PCM data input terminal

The first PCM data is output from TXD at the positive edge of -FSYNC. The second data and the followings are output at the positive edge of BCLK. After all data of 8 bit are output, the last data is kept until the positive edge of next -FSYNC. The positive edge of BCLK should be within ±100ns from the positive edge of -FSYNC.
The PCM data input from RXD is sampled at the negative edge of BCLK inside LSI. The sampling of the first data is performed between the positive edge of -FSYNC and the first negative edge of BCLK. After completing the sampling of all data of 8 bit, this sampling pauses until the next positive edge of -FSYNC.

Pulse Timing



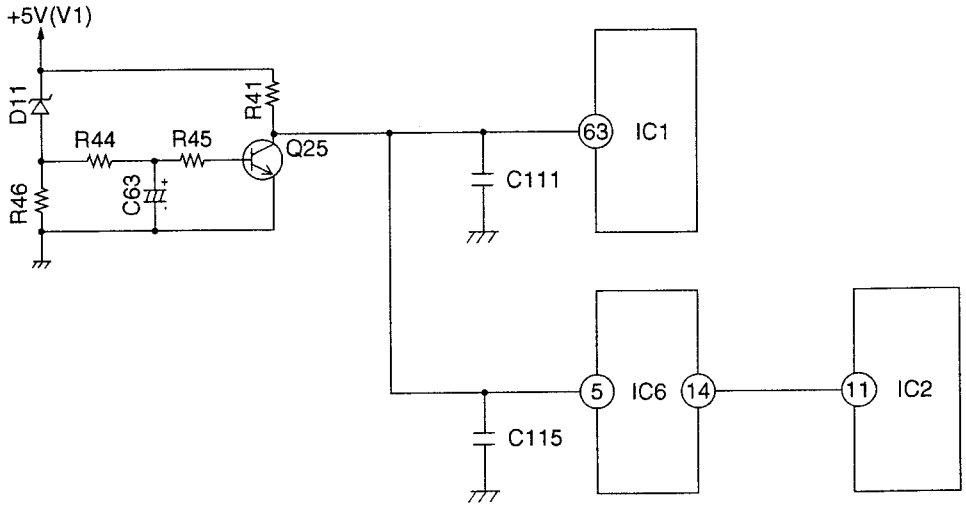
(–100ns≦Ⓐ≦ +100ns)

5. RESET CIRCUIT

1) Circuit Operation

This circuit is used for transmission of a reset pulse to the CPU (IC6) at the following times, connecting the telephone line jack and circuit operation.
The timing chart is shown below.

Circuit Diagram



Power ON

↓

Q25 OFF
The reset signal goes up with the power voltage.

↓

D11 Zener Diode ON

↓

Charging C63 is started.
The base voltage of Q25 goes up.

↓

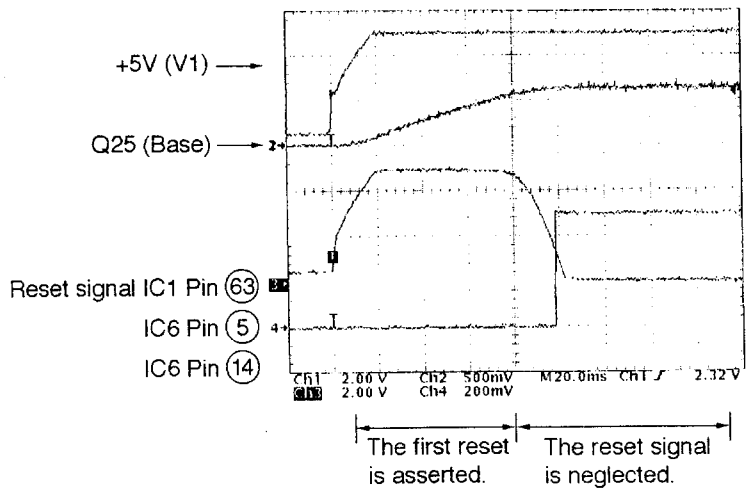
Q25 ON

The reset signal is negledted.

↓

Reset signal is asserted

Timing Chart

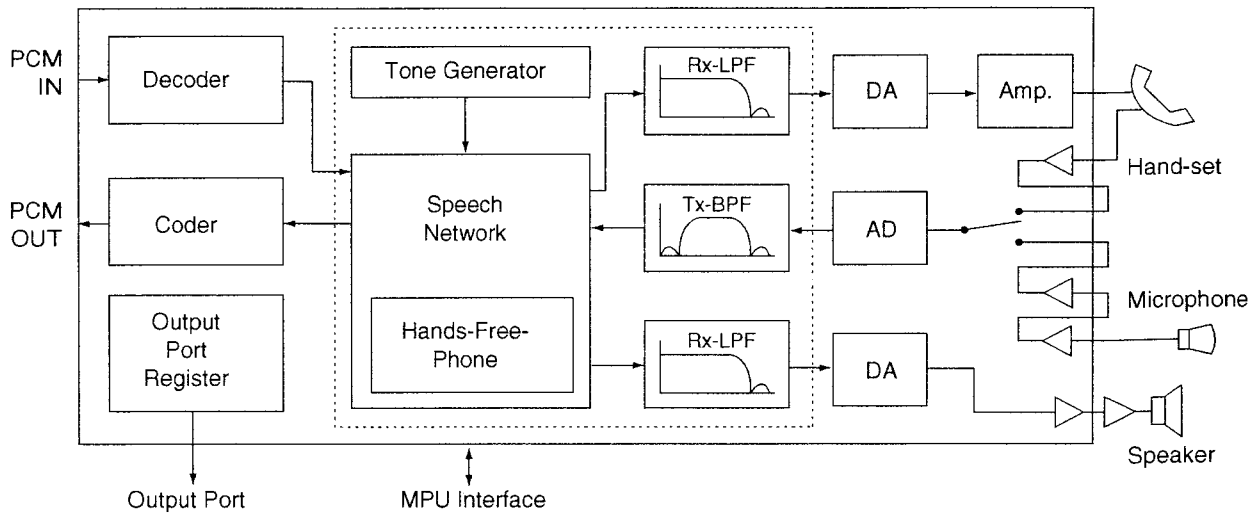

+5V (V1)
Q25 (Base)
Reset signal IC1 Pin 63
IC6 Pin 5
IC6 Pin 14
Ch1 2.00 V Ch2 500mV M20.0ms Ch1 2.32 V
Ch3 2.00 V Ch4 200mV
The first reset is asserted.
The reset signal is neglected.

6. TONE GENERATION CIRCUIT

1) Function

Calling tones, Busy tone, DTMF signal and Key in tone are generated in IC2.

IC2 Block Diagram



DTMF Frequency Table

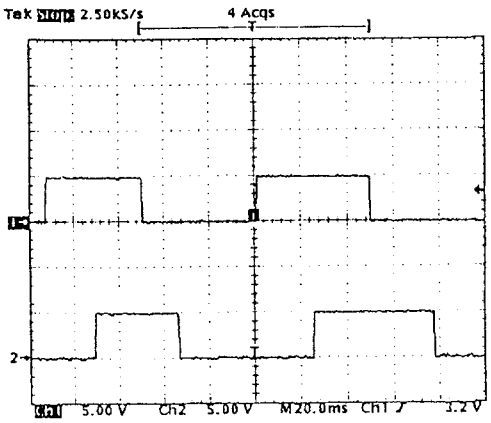
		High Group (IC9 Pin 77)		
		1209 Hz	1336 Hz	1477 Hz
Low Group (IC9 Pin 78)	697 Hz	1	2	3
	770 Hz	4	5	6
	852 Hz	7	8	9
	941 Hz	*	0	#

7. JOG DIAL CIRCUIT

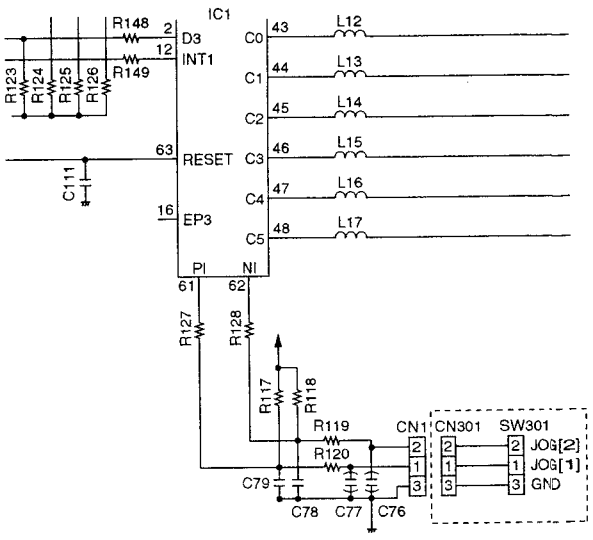
1) Circuit Operation

This unit is equipped with the JOG switch, which makes the settings of the volume, function selection speed dial, etc. easy and convenient. This JOG switch consists of 2-phase rotary encoder, and the gate array of IC1 counts the number of the rotation to control. The sampling cycle is 1ms and provided with the chattering protective circuit whose available pulse width is 1ms or more.

JOG Dial Input Signal



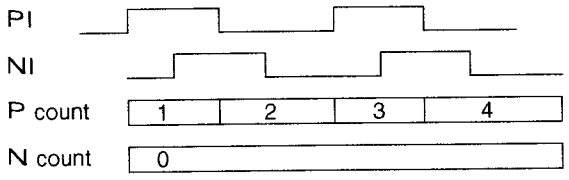
Circuit Diagram



These are the rotary encoder inputs, and sampled 1 kHz (1 msec)/cycle. The built-in chattering protective circuit neglects the input pulse of 1 msec or less. The high pulse of 2 msec or more is available. The availability of the pulse with the width of 1~2 msec is not ensured.
The changed number of these 2-phase inputs is counted cumulatively. The maximum counting value is 255.

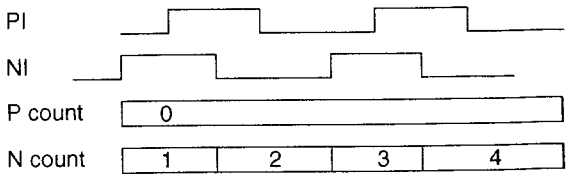
[Forward phase count]

Counts PI rising at NI=0, and PI falling at NI=1.



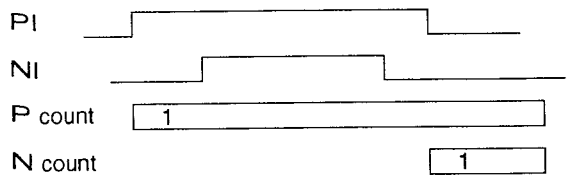
[Reverse phase count]

Counts PI rising at NI=1, and PI falling at NI=0.



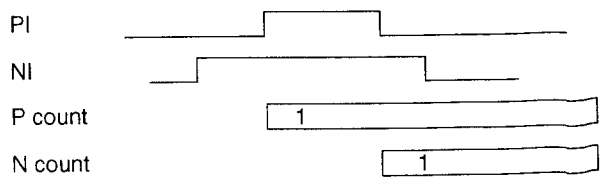
[Reverse rotation count-1]

Each P/N is added 1 at the reverse rotation.



[Reverse rotation count-2]

Each P/N is added 1 at the reverse rotation.

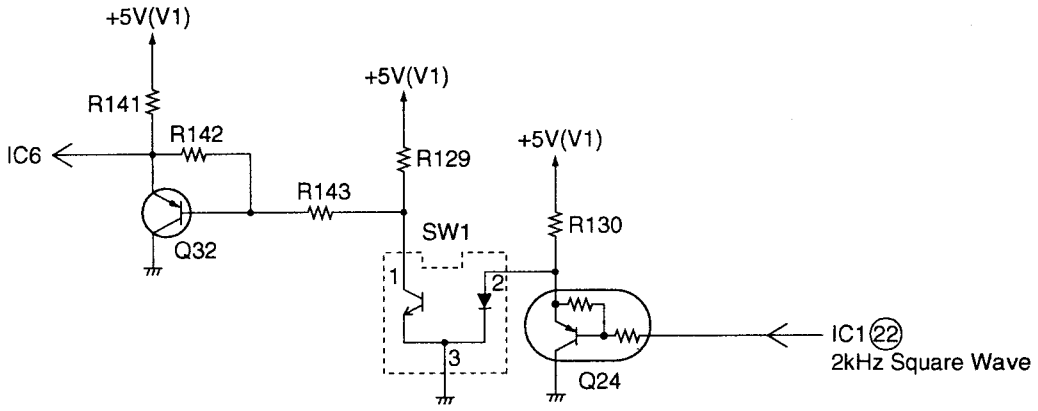


8. HOOK SWITCH CIRCUIT

1) Circuit Operation

The hook switch of this unit employs the photo switch consisting of LED and photo transistor. The 2kHz pulse from the gate array of IC2 causes the LED to emit the light. The light is interrupted at ON-HOOK and passes through at OFF-HOOK by the hooking bar, so that the hooking is performed controlling the light of the photo transistor. The detection signal is determined by the microcomputer of IC6.

Circuit Diagram



9. HANDSET CIRCUIT

1) Transmission signal path

The analog input signal from the handset microphone is input to the communication LSI through the IC2 built-in analog amplifier. In this LSI the network control based on A/D conversion and the handset software and the gain control based on the down load data from the PBX are performed. The voice data is sent to IC1 by the serial transmission. The voice data is transmitted between PBX and DPITS with the protocol originated by KME.

2) Reception signal path

The voice serial data transmitted from PBX is sent to IC1 or IC2 by the serial data. The network control, gain control, A/D conversion is performed in IC2, then the data is output from the handset speaker. Q31 of the handset speaker performs the mute operation by controlling IC6.

3) Circuit diagram for transmission/reception signal path

Refer to page 39.

10. SP-PHONE CIRCUIT

1) Transmission signal path

The analog input signal from SP-phone microphone is input to the communication LSI through the IC2 built-in analog amplifier. In this LSI the network control based on A/D conversion and the handset software and the gain control based on the down load data from the PBX are performed. The voice data is sent to IC1 by the serial transmission. The voice data is transmitted between PBX and DPITS with the protocol originated by KME. IC3 is the SP-phone amplifier, which turns ON/OFF using the port of IC2. The analog switch of IC12 interrupts the input signal.

2) Reception signal path

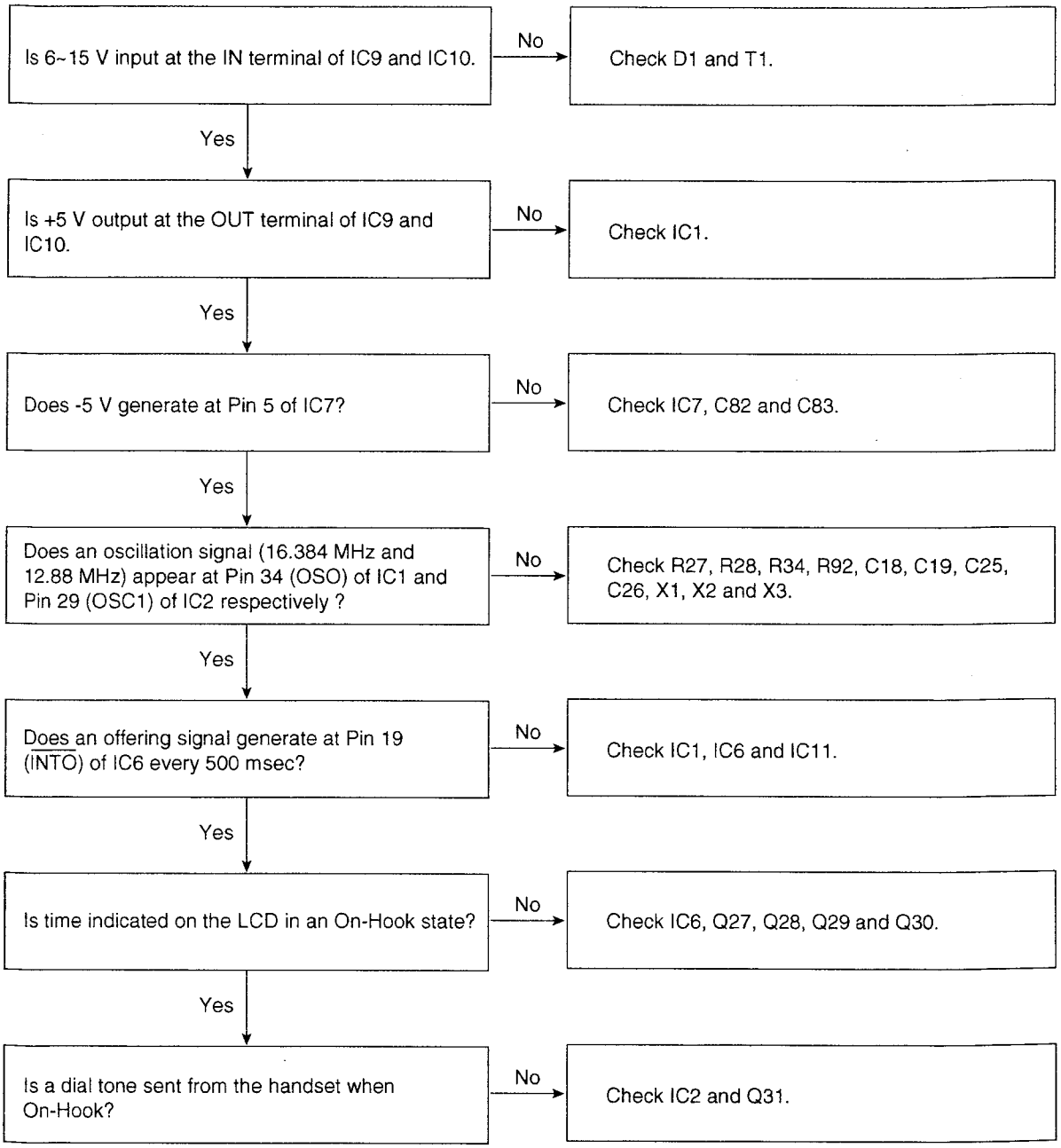
The voice serial data transmitted from PBX is sent to IC2 by the serial transmission. Then the signal is outpout from the handset speakerphone after performing the network control, gain control, and A/D conversion in IC2. The SP-phone microphone has the mute function, which interrupts the input signal with the analog switch and controls the port of IC2 with Q26.

3) Circuit diagram for transmission/reception signal path

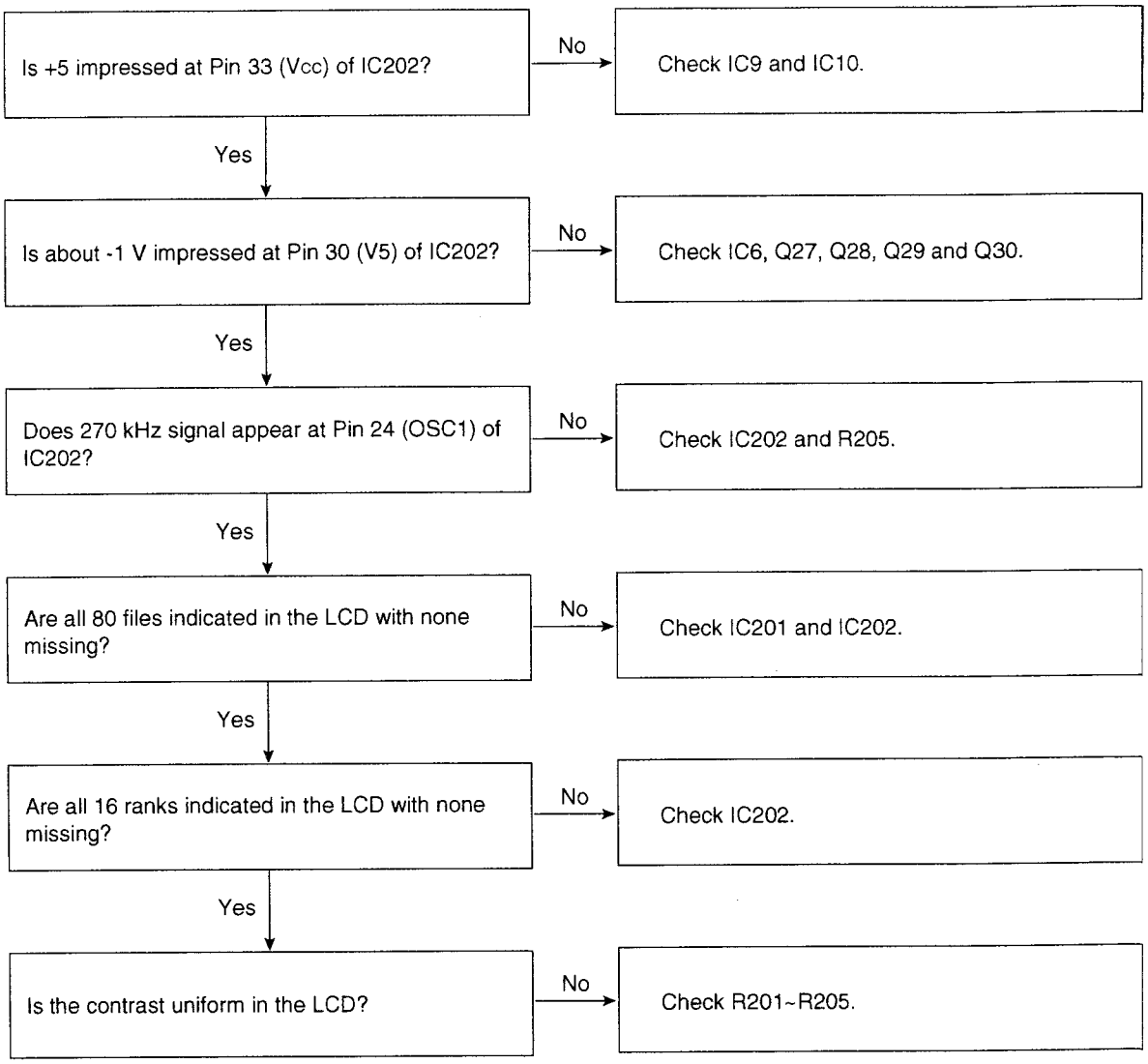
Refer to page 39.

TROUBLESHOOTING GUIDE

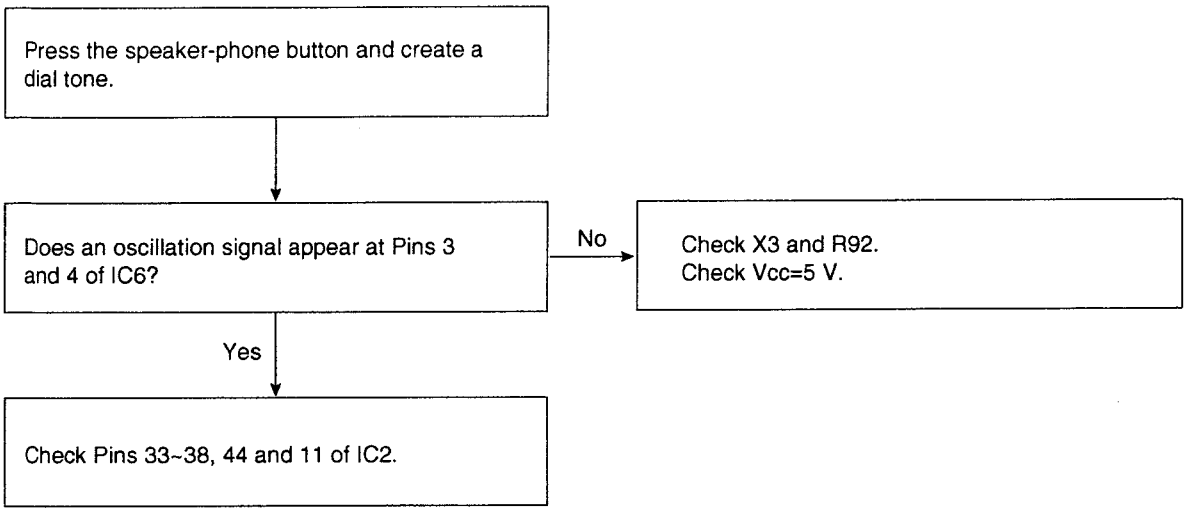
1. NO OPERATION.


Is 6~15 V input at the IN terminal of IC9 and IC10.
No
Check D1 and T1.
Yes
Is +5 V output at the OUT terminal of IC9 and IC10.
No
Check IC1.
Yes
Does -5 V generate at Pin 5 of IC7?
No
Check IC7, C82 and C83.
Yes
Does an oscillation signal (16.384 MHz and 12.88 MHz) appear at Pin 34 (OSO) of IC1 and Pin 29 (OSC1) of IC2 respectively ?
No
Check R27, R28, R34, R92, C18, C19, C25, C26, X1, X2 and X3.
Yes
Does an offering signal generate at Pin 19 (INTO) of IC6 every 500 msec?
No
Check IC1, IC6 and IC11.
Yes
Is time indicated on the LCD in an On-Hook state?
No
Check IC6, Q27, Q28, Q29 and Q30.
Yes
Is a dial tone sent from the handset when On-Hook?
No
Check IC2 and Q31.

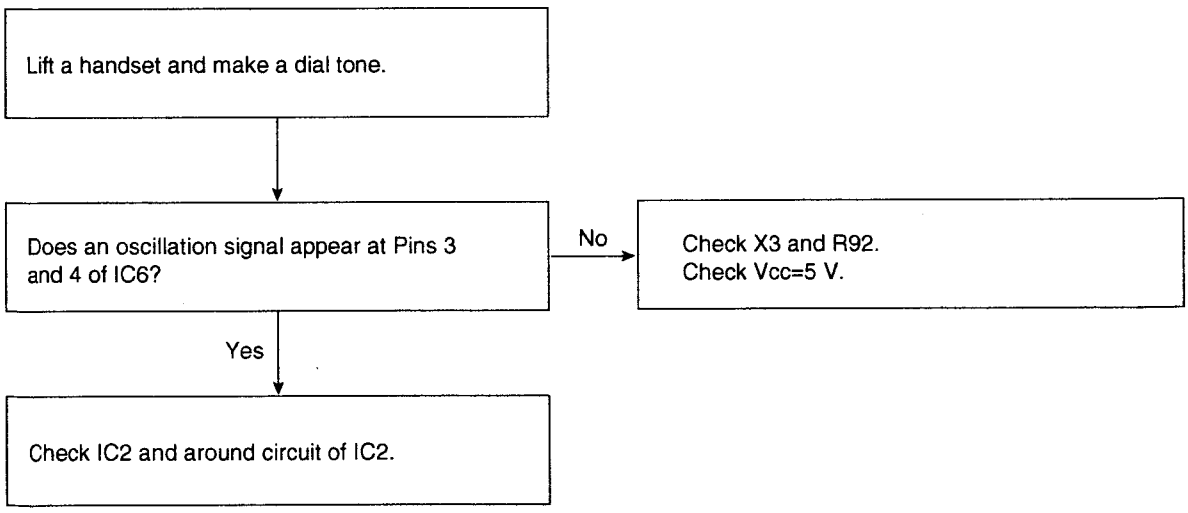
2. THE LCD DOES NOT OPERATE.


Is +5 impressed at Pin 33 (Vcc) of IC202?
No
Check IC9 and IC10.
Yes
Is about -1 V impressed at Pin 30 (V5) of IC202?
No
Check IC6, Q27, Q28, Q29 and Q30.
Yes
Does 270 kHz signal appear at Pin 24 (OSC1) of IC202?
No
Check IC202 and R205.
Yes
Are all 80 files indicated in the LCD with none missing?
No
Check IC201 and IC202.
Yes
Are all 16 ranks indicated in the LCD with none missing?
No
Check IC202.
Yes
Is the contrast uniform in the LCD?
No
Check R201~R205.

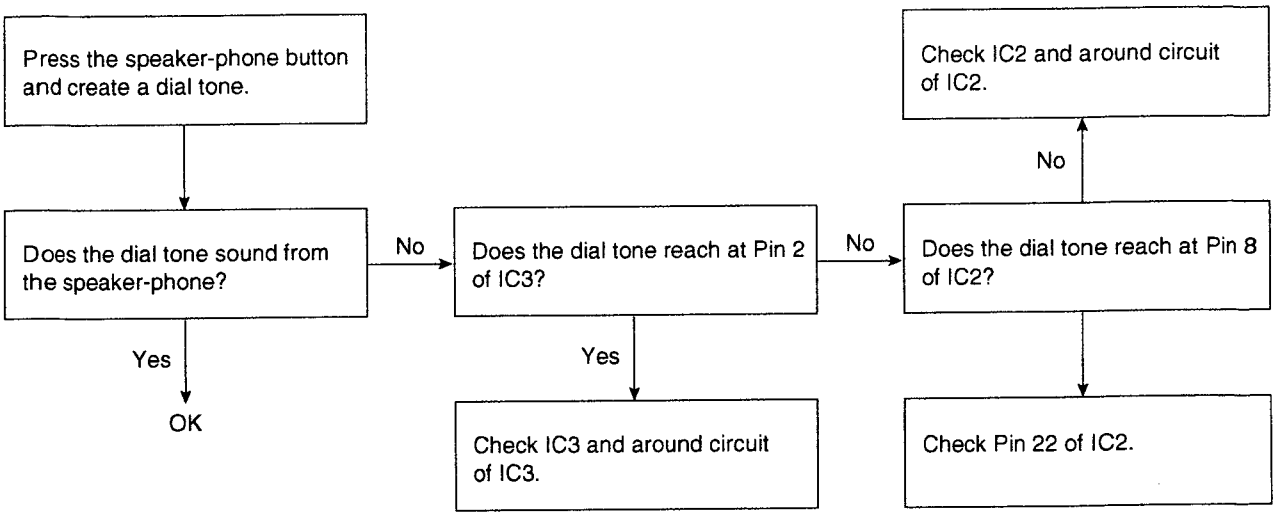
3. THE ELECTRONIC VOLUME OF THE SPEAKER-PHONE DOES NOT WORK.


Press the speaker-phone button and create a dial tone.
Does an oscillation signal appear at Pins 3 and 4 of IC6?
No
Check X3 and R92.
Check Vcc=5 V.
Yes
Check Pins 33~38, 44 and 11 of IC2.

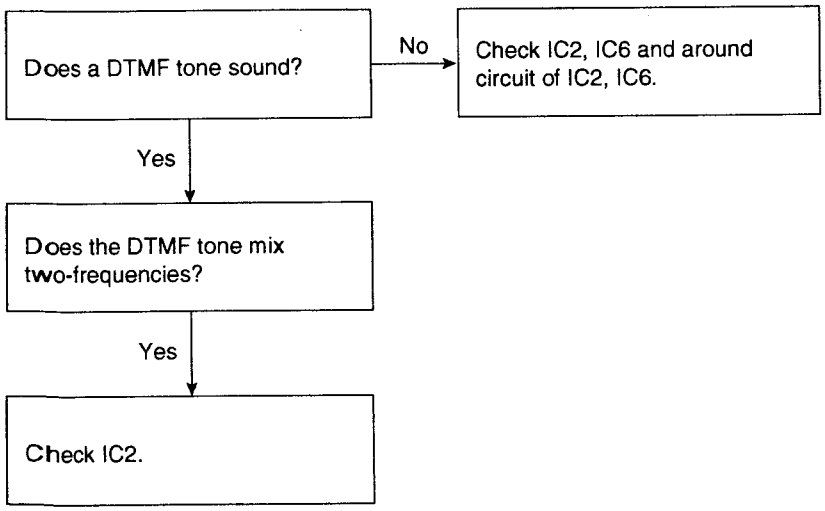
4. THE ELECTRONIC VOLUME OF THE HANDSET DOES NOT WORK.


Lift a handset and make a dial tone.
Does an oscillation signal appear at Pins 3 and 4 of IC6?
No
Check X3 and R92.
Check Vcc=5 V.
Yes
Check IC2 and around circuit of IC2.

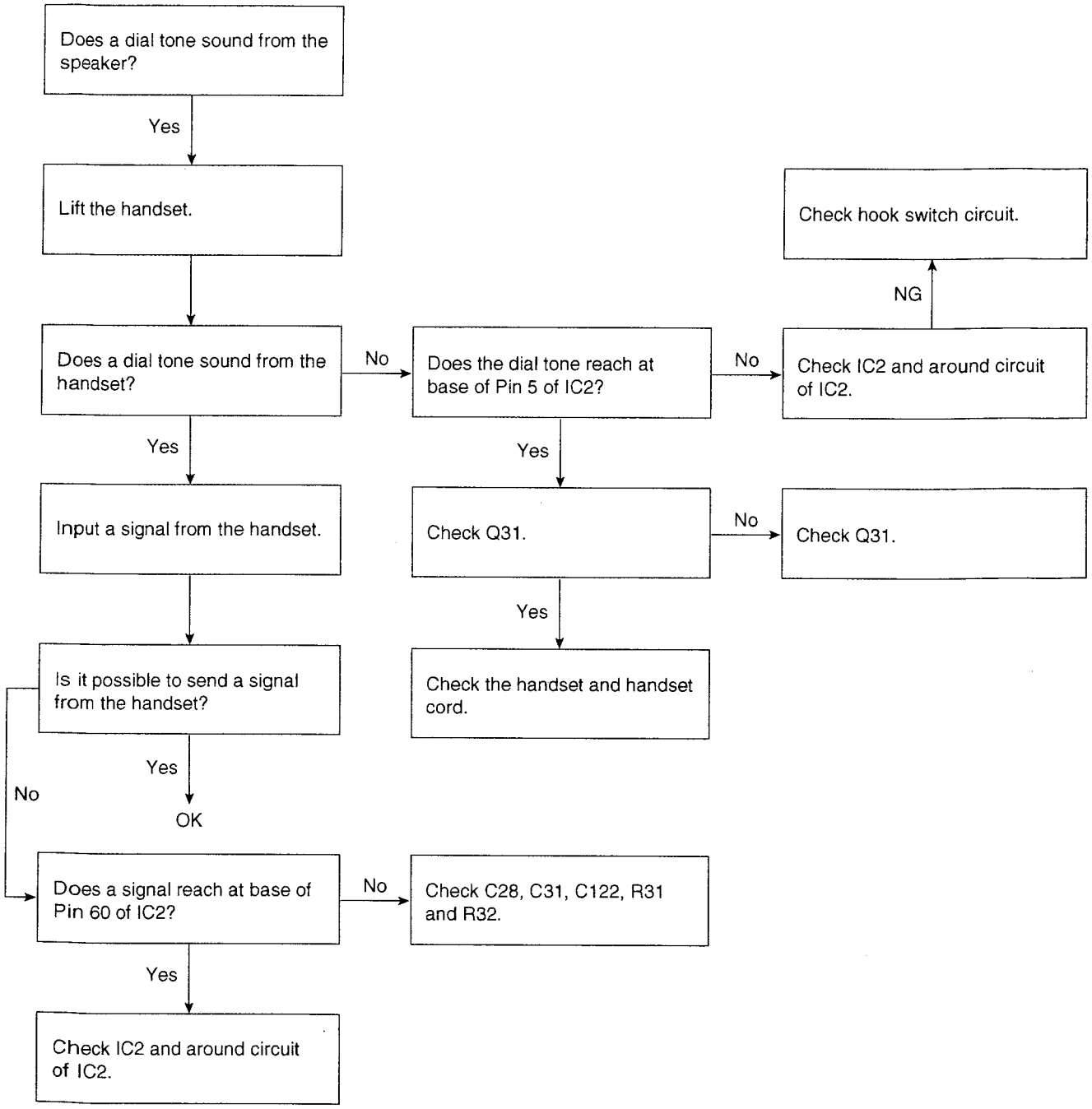
5. SPEAKER-PHONE TROUBLE.


Press the speaker-phone button and create a dial tone.
Does the dial tone sound from the speaker-phone?
No
Does the dial tone reach at Pin 2 of IC3?
No
Does the dial tone reach at Pin 8 of IC2?
Check IC2 and around circuit of IC2.
No
Yes
OK
Yes
Check IC3 and around circuit of IC3.
Check Pin 22 of IC2.

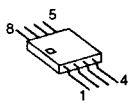
6. TONE DIAL TROUBLE.



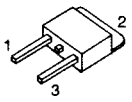
7. HANDSET TROUBLE.



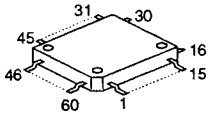
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



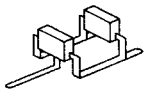
PQVIMC34119D



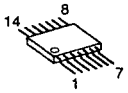
PSVIBA05FP



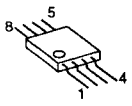
PSVITC5324F2



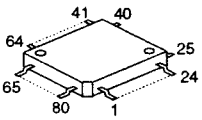
PSVII24015T



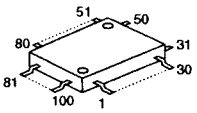
PQVINJM319V



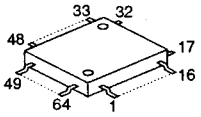
PQVINJM2904F
PQVINJU7660M



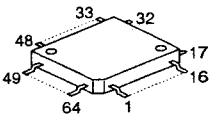
PSVI44780B24



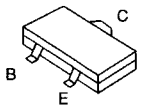
PQVILC7931D



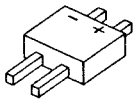
PSVIBU65050D



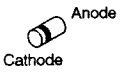
PSVI40612A04



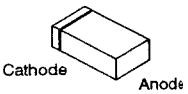
2SA1576Q, PQVTFB1J3P
PQVTDTA143XU, UN5213
PQVTDTD133HK, 2SC4081Q



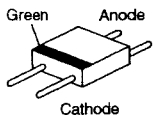
PQVDS1ZB60F1



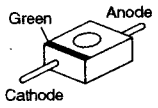
RLS71



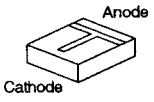
PSVDUDZ39B



PQVDPY1204



PQVDBR1102W
PQVDPY1102



PSVD111R820R

HOW TO REPLACE THE FLAT PACKAGE IC

If you do not have the special tools (for example: SPOT HEATER) to remove the SPOT HEATER'S Flat IC, if you have solder (large amount) a soldering iron and a cutter knife, you can easily remove IC's even though large than 100 pin.

1. PREPARATION

- SOLDER - - - - - - - Sparkle Solder 115A-1, 115B-1
  OR
  Almit Solder KR-19, KR-19RMA

- Soldering iron - - - - - Recommended power consumption is between 30 W to 40 W.
  Temperature of Copper Rod 662 ± 50 °F (350 ±10℃)

  (An expert may handle a 60~80 W iron, but a beginner might damage the foil by overheating.)

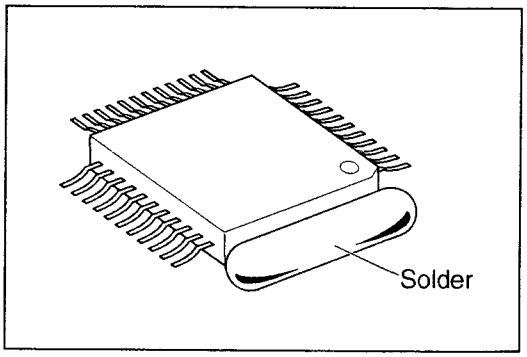
- Flux - - - - - - - - - - HI115 Specific gravity 0.863

  (Original flux should be replaced daily.)

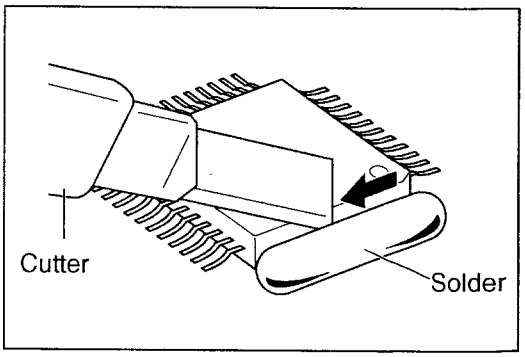
2. FLAT PACKAGE IC REMOVE PROCEDURE

1) When all of the IC lead can not been seen at the standard degree, fill with large quantities of solder.

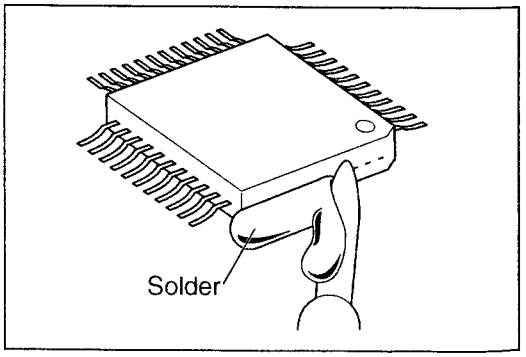
Note:
If you do not fill with solder and directly cut the IC lead with the cutter, stress may build up directly in the P.C.board's pattern. If you do not fill with large quantities of solder as in step 1 the P.C.board pattern may be removed.



2) Using a cutter, cut the lead at the source.
(Cut the contents with the cutter lightly 5 or 6 times.)



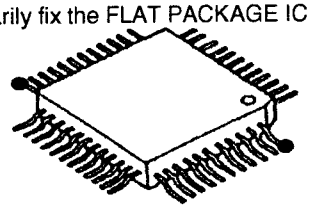
3) Remove when the solder melts.
(Remove the lead at the same time.)



After removing the Flat IC and when attaching the new IC, remove any of the excess solder on the land using the soldering wire, etc. If the excess solder is not removed from the land, the IC will slip and not be attached properly.

3. FLAT PACKAGE IC INSTALLATION PROCEDURE

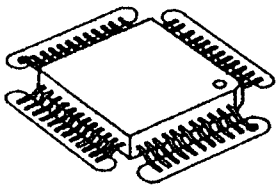
1) Temporarily fix the FLAT PACKAGE IC by soldering on the two marked pins.



●- - - - - -Temporary soldering point.

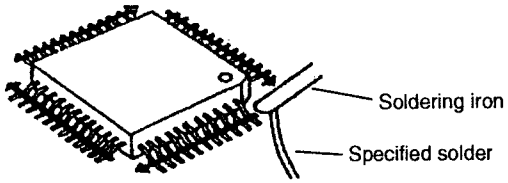
*Check the accuracy of the IC setting with the corresponding soldering foil.

2) Apply flux to all pins of the FLAT PACKAGE IC.



- - - - - Flux

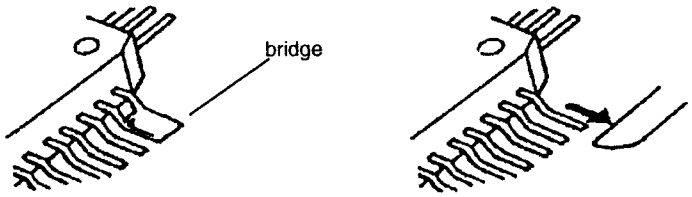
3) Solder using the specified solder, in the direction of the arrow, by sliding the soldering iron.



4. BRIDGE MODIFICATION PROCEDURE

1) Lightly re-solder the bridged portion.

2) Remove the remaining solder along the pins using a soldering iron as shown in the figure below.

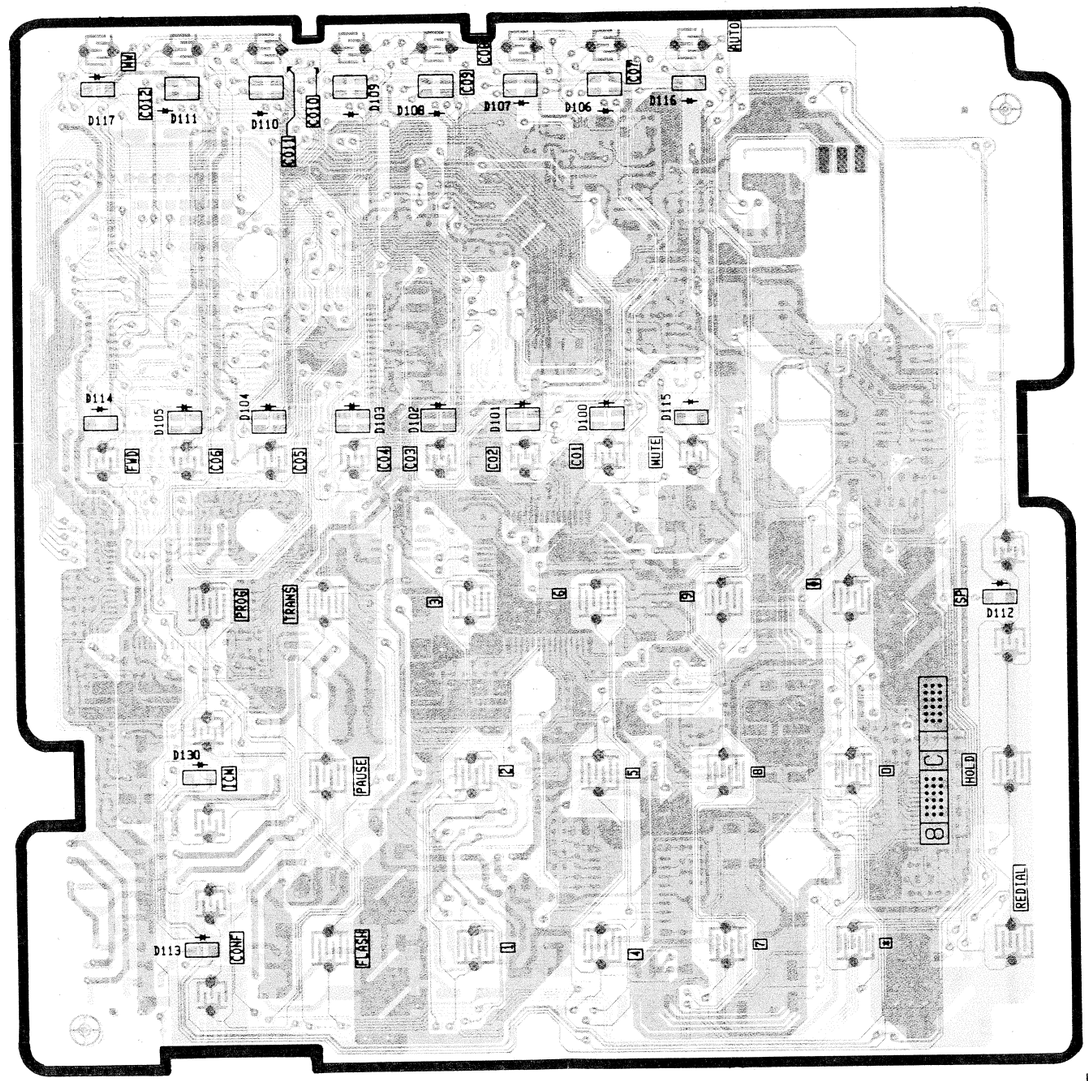


MEMO

KX-T7533G/KX-T7533G-B

PRINTED CIRCUIT BOARD (MAIN BOARD)

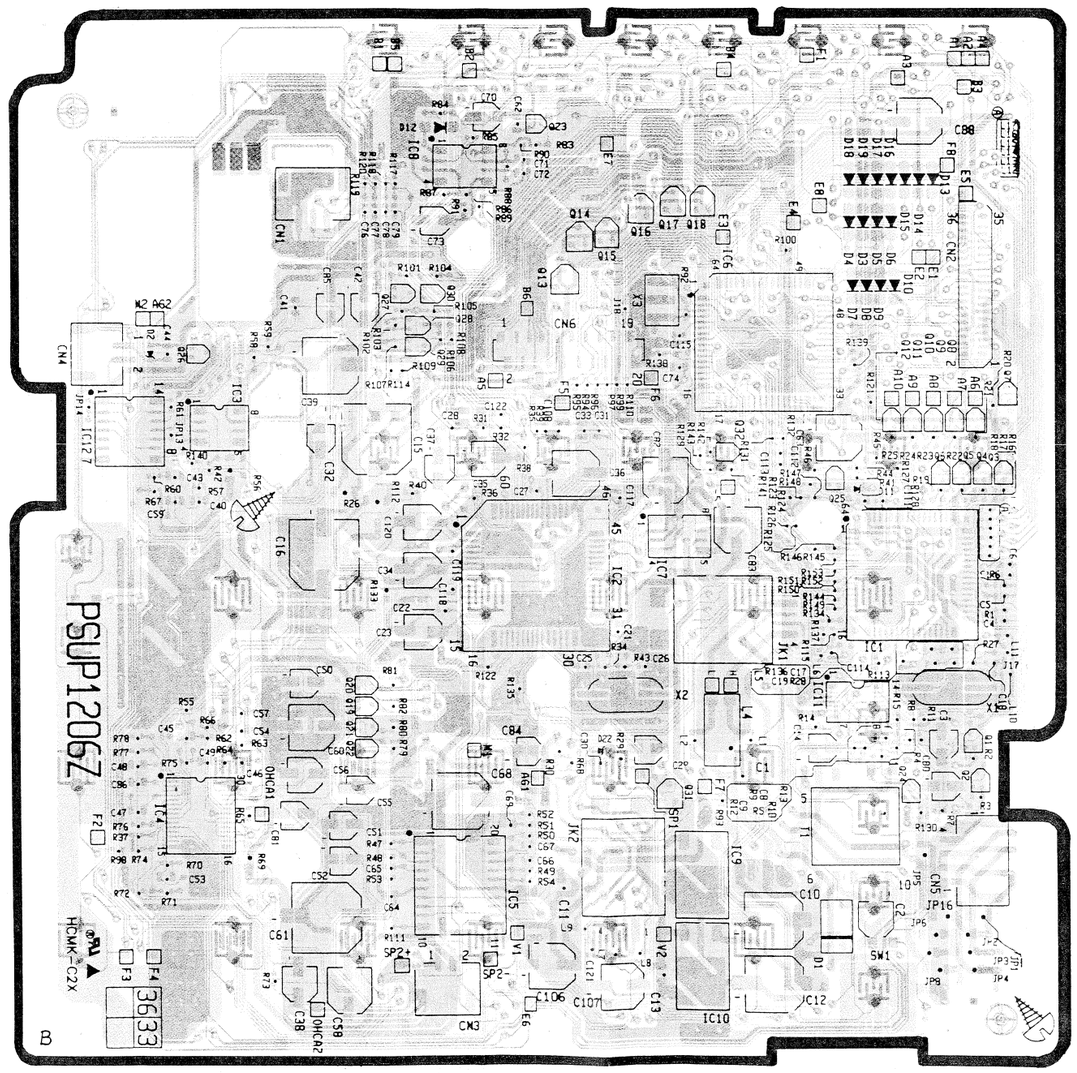
(BOTTOM VIEW)



Notes: 1. The circuit shown in ▭ on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ▭ on the conductor indicates printed circuit on the front side of the printed circuit board.
3. This printed circuit board may be modified at any time with the development of new technology.

PRINTED CIRCUIT BOARD (MAIN BOARD)

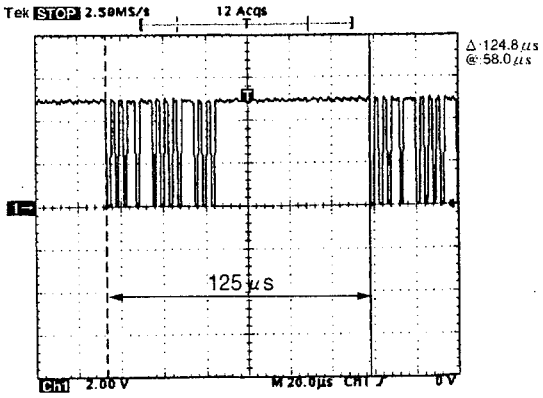
(COMPONENT VIEW)



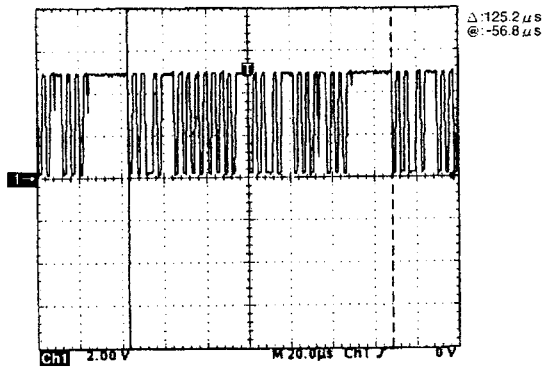
Notes: 1. The circuit shown in ▭ on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ▭ on the conductor indicates printed circuit on the front side of the printed circuit board.
3. This printed circuit board may be modified at any time with the development of new technology.

WAVEFORM

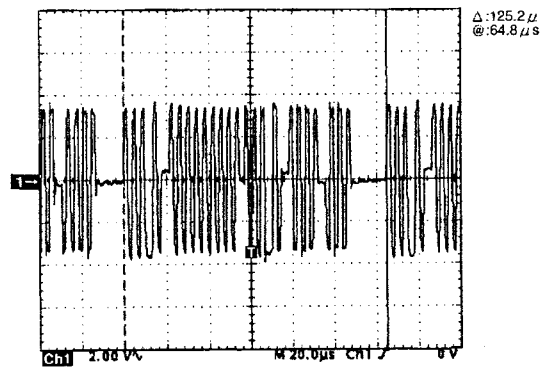
① TX DATA TRANSFER



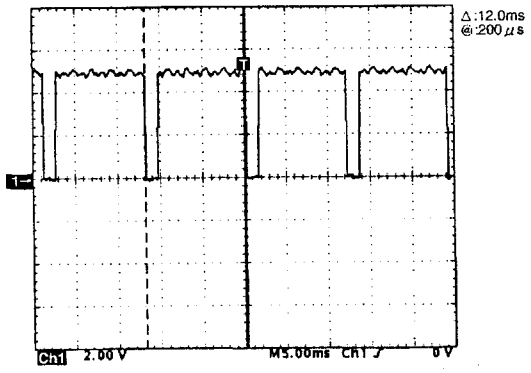
② RX DATA TRANSFER



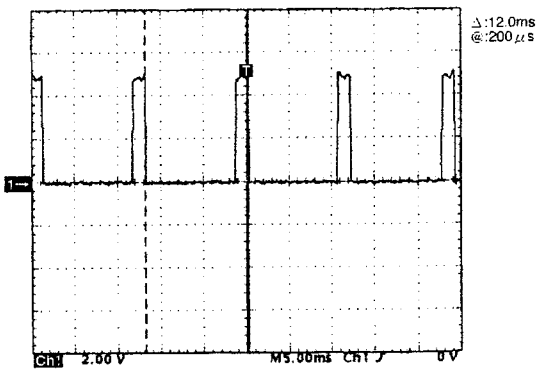
③ H-L DATA



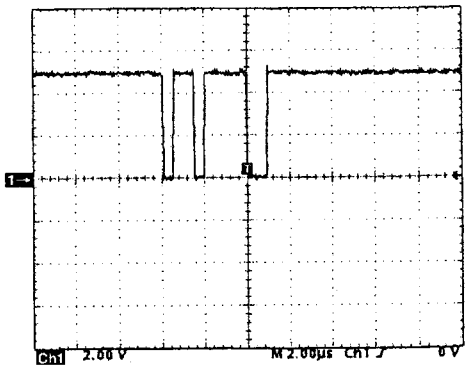
④ LED COTROL DATA



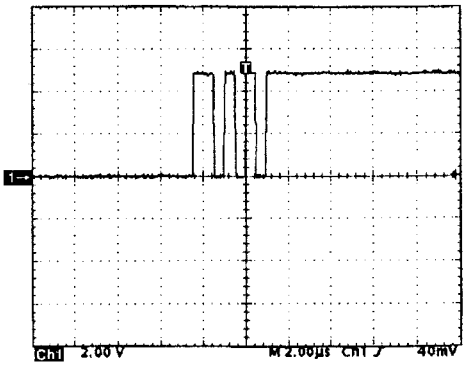
⑤ LED CONTROL DATA



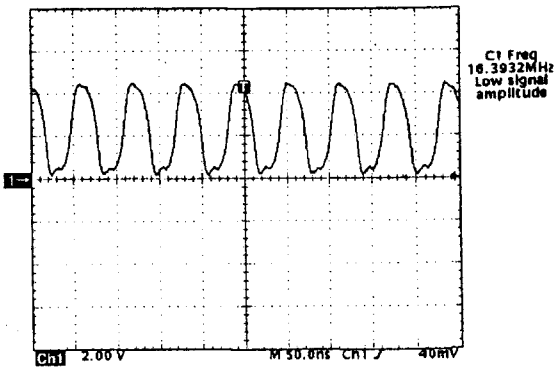
⑥ RX VOICE SERIAL DATA
(VOICE DATA ON)



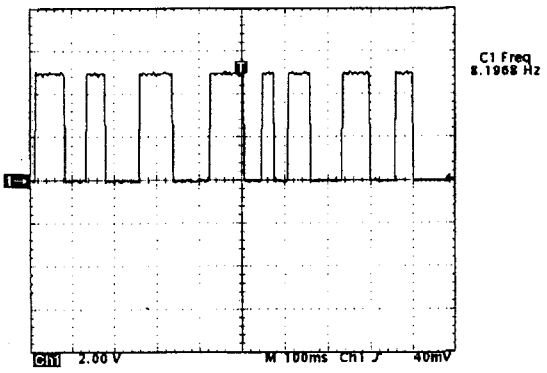
⑦ TX VOICE SERIAL DATA
(VOICE DATA ON)



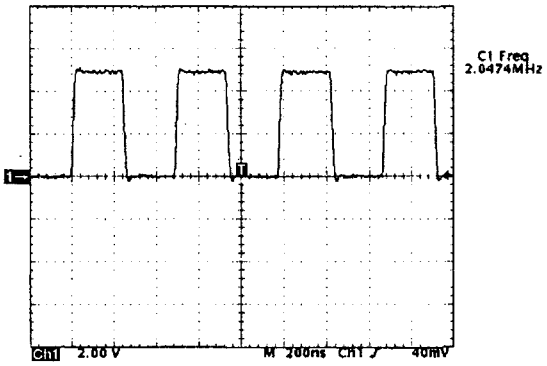
⑧ 16.38MHz CRYSTAL OUTPUT



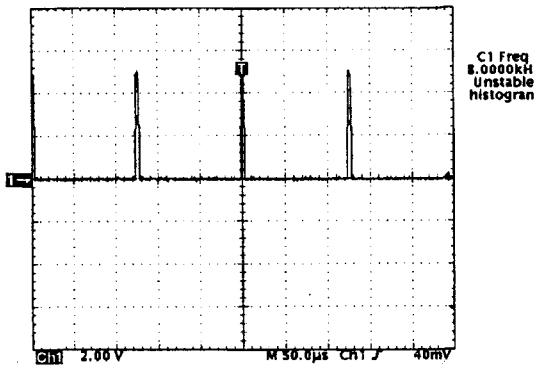
⑨ JOG DIAL
(JOG OPERATION)



⑩ CK2M

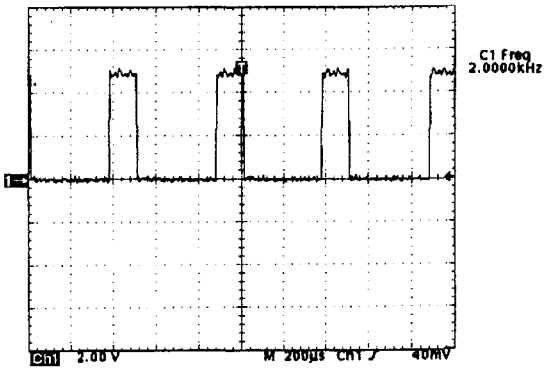


⑪ EP2

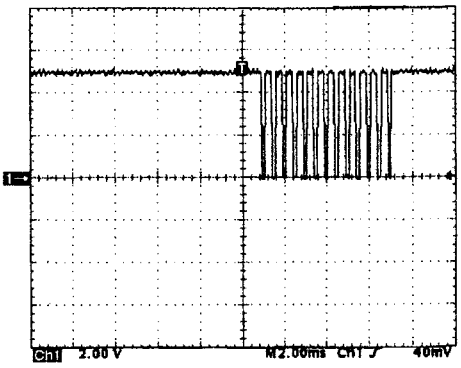


⑫ Not used

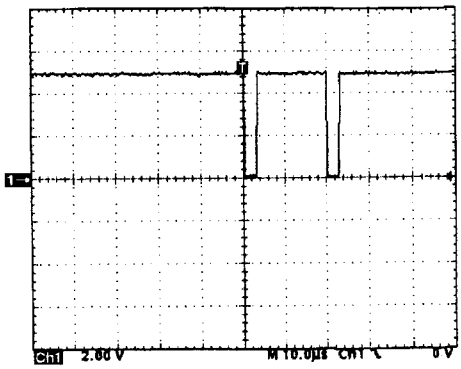
⑬ CK2K



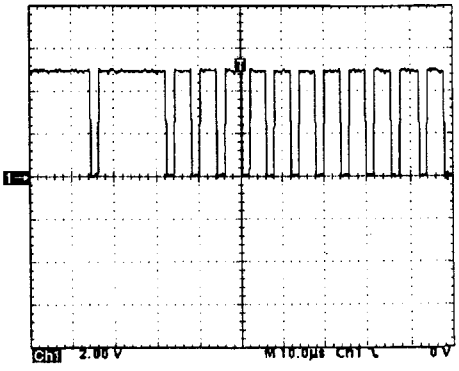
⑭ INT



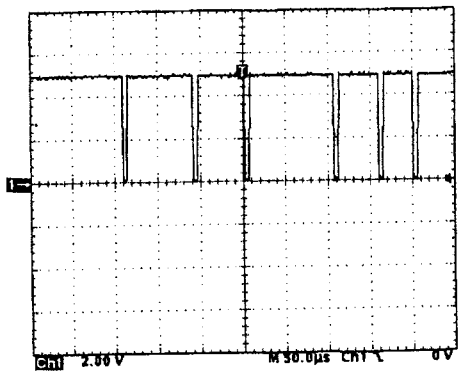
⑮ IOR



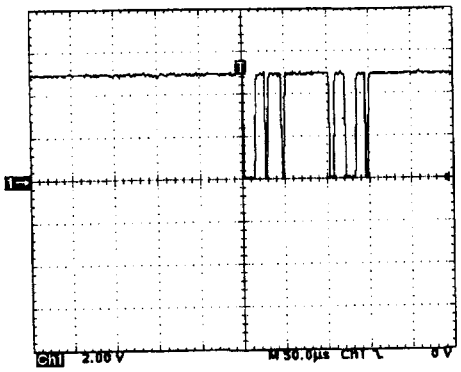
⑯ IOW



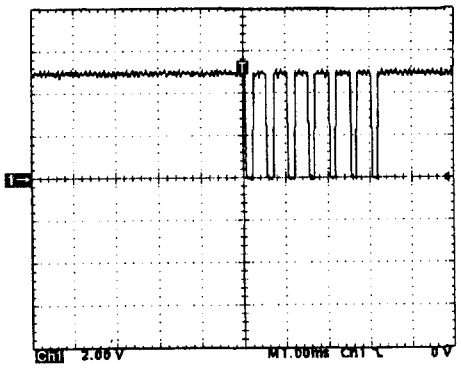
⑰ A0 ~ A1



⑱ D0 ~ D3

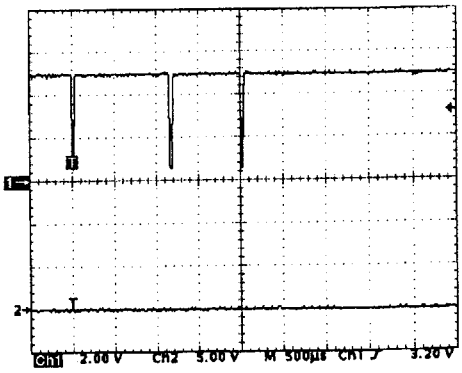


⑲ INT2

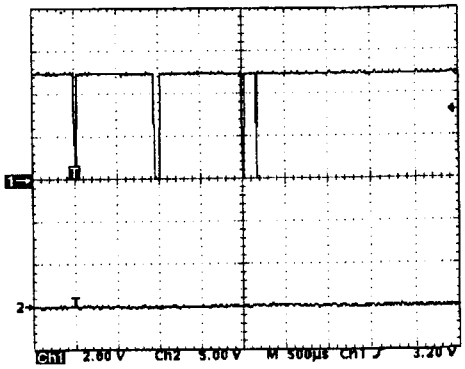


⑳ Not used

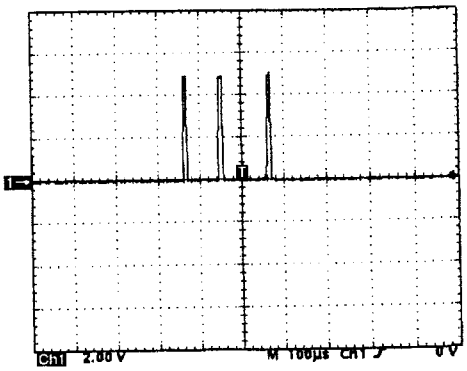
㉑ KEY INPUT SIGNAL
(KEY ON , KEY OFF:5V)



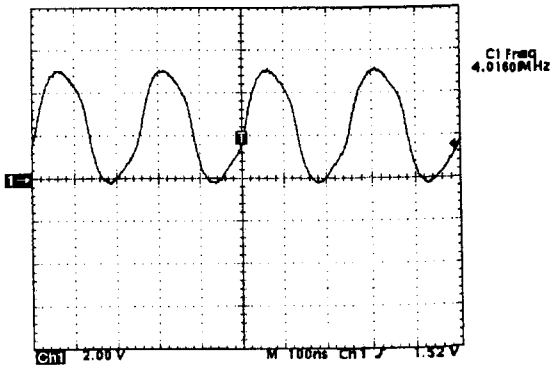
㉒ KEY CONTROL SIGNAL



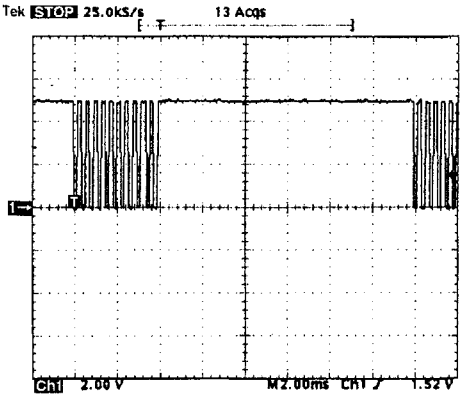
㉓ LCD DATA



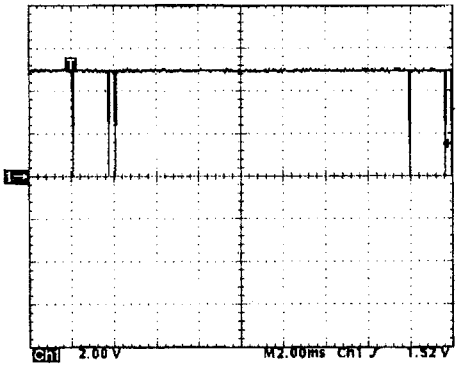
㉔ 4MHz CLOCK



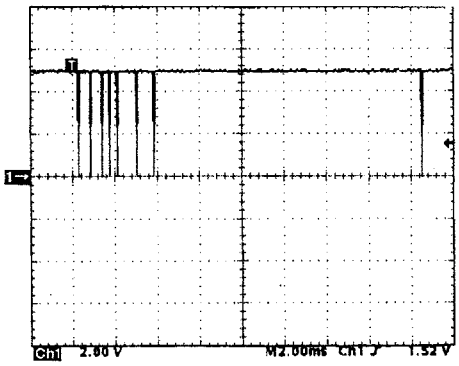
㉝ ALE



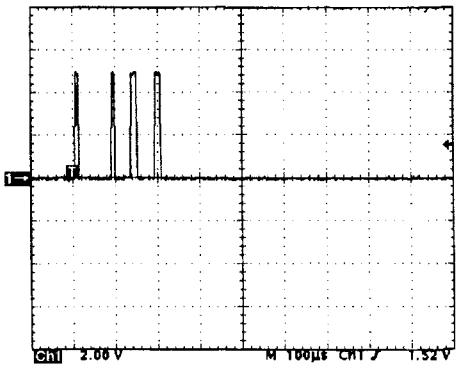
㉞ INT



㉟ -WR/STB

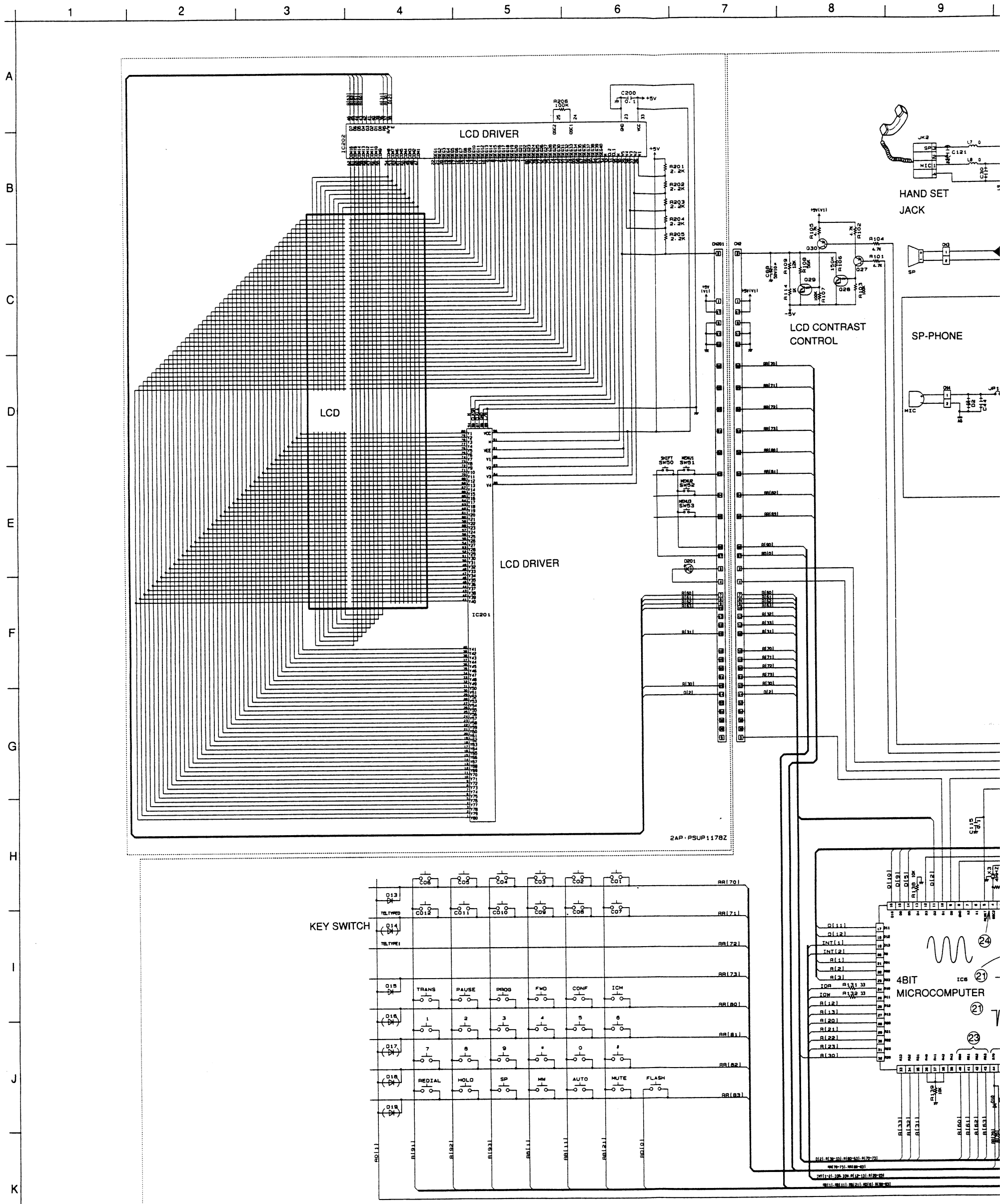


㊱ -RD/SD0



Note:

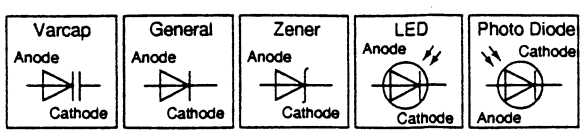
㉕ ~ ㉜ Not used



Notes:

1. DC voltage measurements are taken with oscilloscope from ground line.
   (Waiting condition.)
2. The schematic diagram may be modified at any time with the development of new technology.

3)



9 10 11 12 13 14 15 16 17 18

HAND SET JACK

SP ON : L
OFF : H

COMMUNICATION LSI

SP-PHONE

2.5V

DPITS GATE ARRAY

0.63V

REGULATOR SECTION

12V

PBX

XDP JACK

LED

TONE DETECTION CIRCUIT

TONE INPUT : L
NO TONE : H

0.6V : OFF HOOK
4.5V : ON HOOK

HOOK SWITCH

RESET CIRCUIT

RESET : H 5V
NORMAL : L 0V

JOG SWITCH

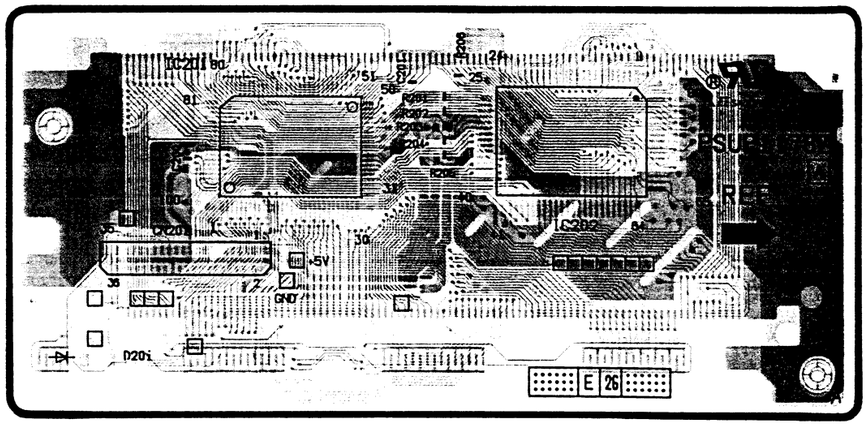
4BIT MICROCOMPUTER IC6

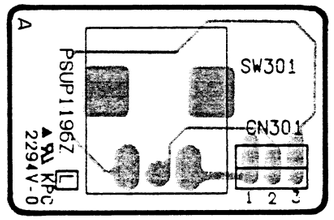
TO KX-T7545CE

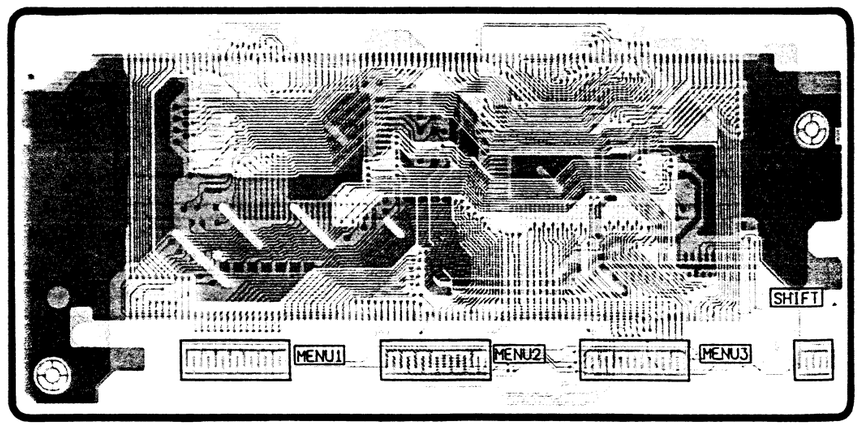
1AP:PSUP1206Z

SP-PHONE RECEPTION
SP-PHONE TRANSMISSION
HANDSET RECEPTION
HANDSET TRANSMISSION

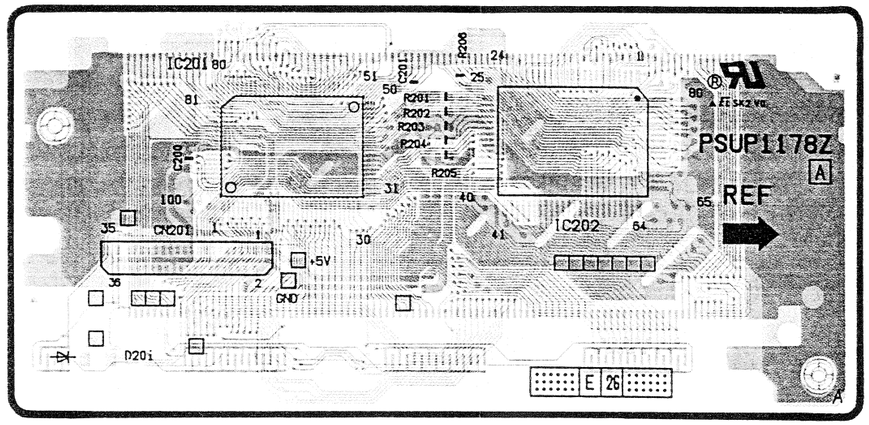
PRINTED CIRCUIT BOARD

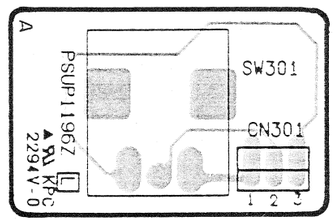


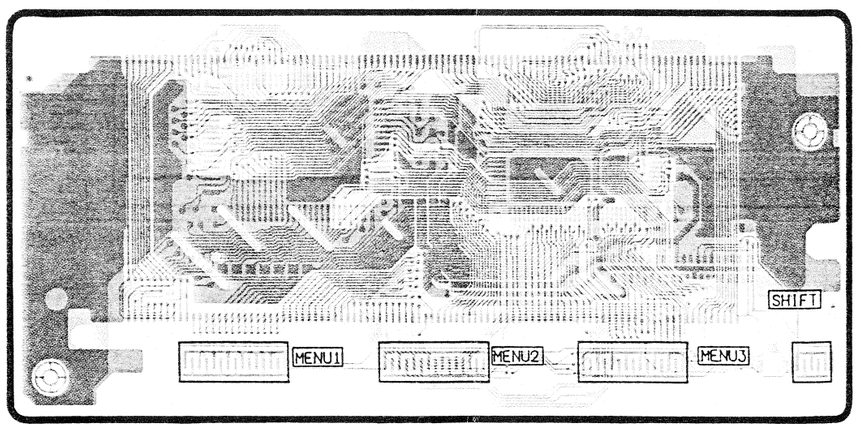




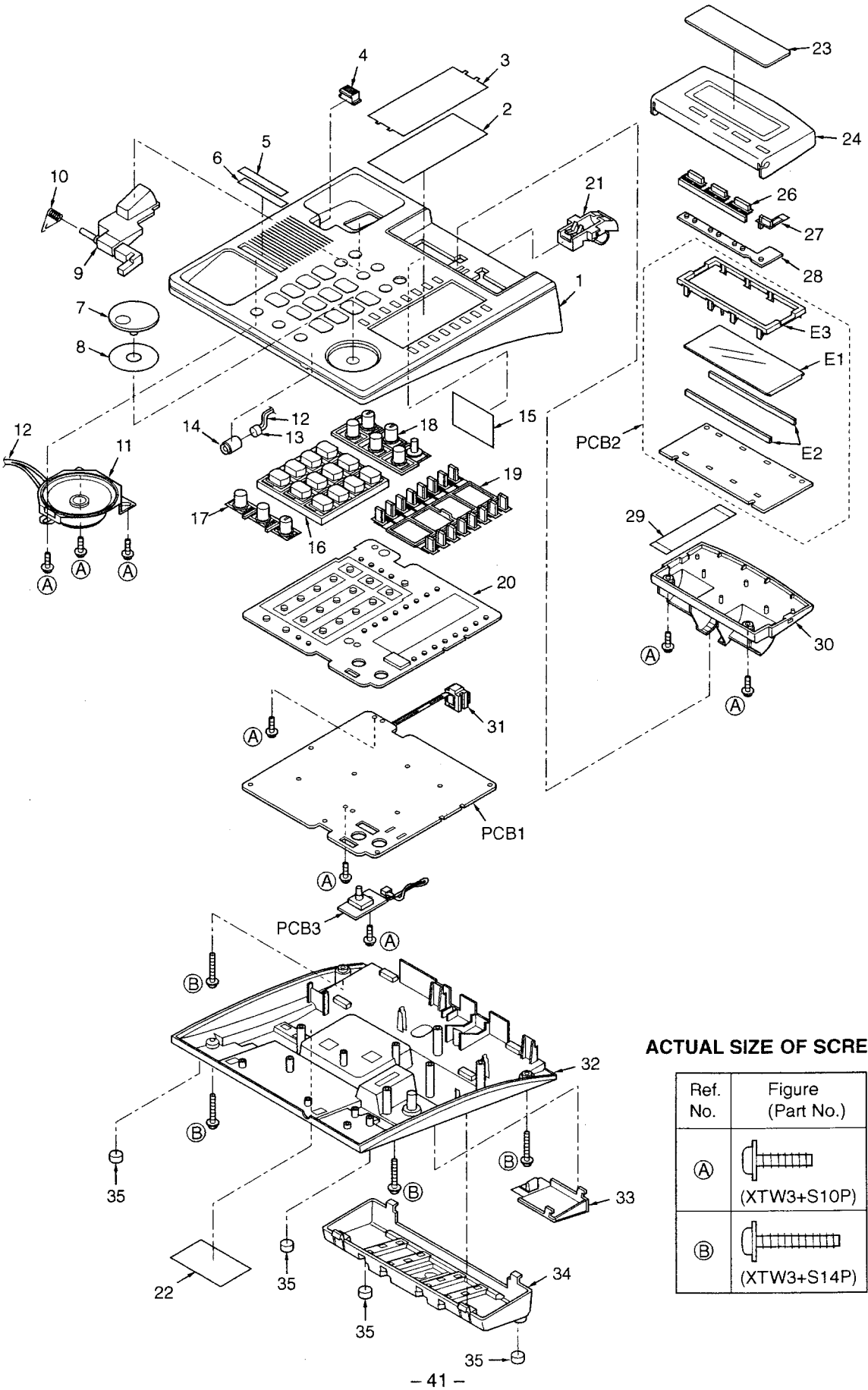
PRINTED CIRCUIT BOARD







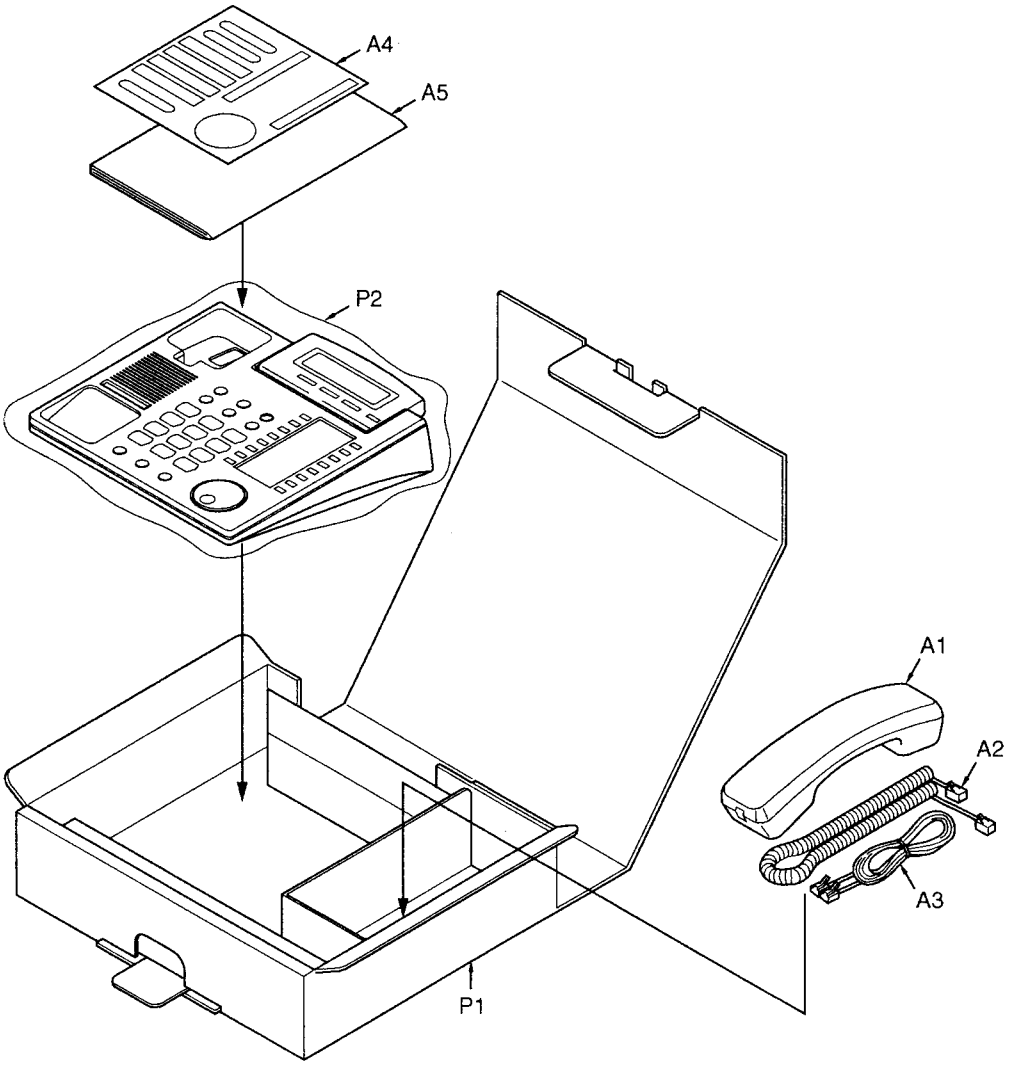
CABINET AND ELECTRICAL PARTS LOCATION



ACTUAL SIZE OF SCREWS

Ref. No.	Figure (Part No.)
Ⓐ	(XTW3+S10P)
Ⓑ	(XTW3+S14P)

ACCESSORIES AND PACKING MATERIALS



This replacement parts list is for KX-T7533G/T7533G-B only. Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Model KX-T7533G/KX-T7533G-B

Notes:
1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
2. The S mark indicates service standard parts and may differ from production.
3. RESISTORS & CAPACITORS
   Unless otherwise specified.
   All resistors are in ohms(Ω) k=1000Ω,M=1000kΩ
   All capacitors are in MICRO FARADS(μF) P=μμF
   *Type &Wattage of Resistor
   Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage of Capacitor
Type

ECFD:Semi-Conductor	ECCD,ECKD,ECBT,PQCBC : Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG : Polyster
PQCUV:Chip	ECEA,ECSZ : Electrolytic
ECQMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

Ref. No.	Part No.	Part Name & Description		Pcs
		CABINET AND ELECTRICAL PARTS		
1	PSKM1057Z1	CABINET BODY (KX-T7533G)		1
1	PSKM1057Z2	CABINET BODY (KX-T7533G-B)		1
2	PSGD1030Y	CARD, DIAL		1
3	PSHR1151Z	TRANSPARENT PLATE		1
4	PQKE82Z1	HANGER (KX-T7533G)		1
4	PQKE82Z2	HANGER (KX-T7533G-B)		1
5	PQHR576Z	TRANSPARENT PLATE		1
6	PQHP532X	CARD, TEL. NO.		1
7	PSBC1017Z1	BUTTON, JOG DIAL (KX-T7533G)		1
7	PSBC1017Z2	BUTTON, JOG DIAL (KX-T7533G-B)		1
8	PSHR1164Y	SPACER		1
9	PSBH1002Z1	BUTTON, HOOK (KX-T7533G)		1
9	PSBH1002Z2	BUTTON, HOOK (KX-T7533G-B)		1
10	PSUS1006Z	SPRING		1
11	PQAS65P28Z	SPEAKER		1
12	PSJS02Q35Z	CONNECTOR		2
13	RJM142Z	MICROPHONE	S	1
14	PSHG1122Z	RUBBER PARTS, MIC COVER		1
15	PSHX1133Z	COVER (KX-T7533G only)		1
16	PSBX1058Z1	BUTTON, DIAL (KX-T7533G)		1
16	PSBX1058Z2	BUTTON, DIAL (KX-T7533G-B)		1
17	PSYX1002Z1	BUTTON, 3KEY (KX-T7533G)		1
17	PSYX1002Z2	BUTTON, 3KEY (KX-T7533G-B)		1
18	PSBX1060Z1	BUTTON, 6KEY (KX-T7533G)		1
18	PSBX1060Z2	BUTTON, 6KEY (KX-T7533G-B)		1
19	PSBX1061Z1	BUTTON, 16KEY (KX-T7533G)		1
19	PSBX1061Z2	BUTTON, 16KEY (KX-T7533G-B)		1
20	PSSX1010Z	KEY SWITCH		1
21	PSBE1002Z1	BUTTON, ADJUST (KX-T7533G)		1
21	PSBE1002Z2	BUTTON, ADJUST (KX-T7533G-B)		1
22	PSGT1656Z	NAME PLATE (KX-T7533G)		1
22	PSGT1663Z	NAME PLATE (KX-T7533G-B)		1
23	PSGP1031Z1	PANEL, LCD (KX-T7533G)		1
23	PSGP1031Z2	PANEL, LCD (KX-T7533G-B)		1
24	PSGG1011Z1	GRILLE (KX-T7533G)		1
24	PSGG1011Z2	GRILLE (KX-T7533G-B)		1
25	Not Used			
26	PSBX1044Z1	BUTTON, 3KEY (KX-T7533G)		1
26	PSBX1044Z2	BUTTON, 3KEY (KX-T7533G-B)		1
27	PSBC1013Z1	BUTTON, SHIFT (KX-T7533G)		1
27	PSBC1013Z2	BUTTON, SHIFT (KX-T7533G-B)		1
28	PSSX1007Z	KEY SWITCH		1
29	PSJE1014Z	FLAT CABLE		1
30	PSKF1032Z1	CABINET, GRILL LOWER (KX-T7533G)		1
30	PSKF1032Z2	CABINET, GRILL LOWER (KX-T7533G-B)		1
31	PSJJ1T014Z	JACK, TEL. (WITHOUT CONNECTOR)		1
31	PSJJ1T016Z	JACK, TEL. (WITH CONNECTOR)		1
32	PSKF1031Z1	CABINET, LOWER (KX-T7533G)		1
32	PSKF1031Z2	CABINET, LOWER (KX-T7533G-B)		1
33	PSKK1027Z1	LID (KX-T7533G)		1
33	PSKK1027Z2	LID (KX-T7533G-B)		1
34	PSKL1007Z1	STAND (KX-T7533G)		1
34	PSKL1007Z2	STAND (KX-T7533G-B)		1
35	PSHA1002Z	RUBBER PARTS, FOOT		4
		ACCESSORIES AND PACKING MATERIALS		
A1	PQJX2PSL01Y	HANDSET (KX-T7533G)		1
A1	PQJX2PML08Z	HANDSET (KX-T7533G-B)		1
A2	PSJA1043Z	CORD, HANDSET (KX-T7533G)		1
A2	PSJA1043Y	CORD, HANDSET (KX-T7533G-B)		1
A3	PQJA48W	CORD, TEL.		1
A4	PSGD1041Z	CARD, OVERLAY		1
A5	PSQX1552Y	INSTRUCTION BOOK		1
P1	PSPK1476Z	GIFT BOX (KX-T7533G)		1
P1	PSPK1479Z	GIFT BOX (KX-T7533G-B)		1
P2	XZB30X50A01	BAG,POLYETHYLENE		1
		MAIN BOARD PARTS		
PCB1	PSWP1T7533G	MAIN BOARD ASS'Y (RTL)		1
		(ICs)		
IC1	PSVIBU65050D	IC		
IC2	PSVITC5324F2	IC		1
IC3	PQVIMC34119D	IC		1
IC6	PSVI40612A04	IC	S	1
IC7	PQVINJU7660M	IC		1
IC8	PQVINJM2904F	IC		1
IC9,10	PSVIBA05FP	IC		2
IC11	PQVINJM319V	IC		1
SW1	PSVII24015T	IC		1
		(TRANSISTORS)		
Q1,2	2SA1576Q	TRANSISTOR(SI)		2
Q3-12	PQVTDTA143XU	TRANSISTOR(SI)		10
Q13-18	PQVTDTD133HK	TRANSISTOR(SI)		6
Q23	UN5213	TRANSISTOR(SI)	S	1
Q24	PQVTDTA143XU	TRANSISTOR(SI)	S	1
Q25	2SC4081Q	TRANSISTOR(SI)		1
Q27	2SA1576Q	TRANSISTOR(SI)		1
Q28,29	UN5213	TRANSISTOR(SI)	S	2
Q30	2SA1576Q	TRANSISTOR(SI)		1
Q31	PQVTFB1J3P	TRANSISTOR(SI)		1
		(DIODES)		
D1	PQVDS1ZB60F1	DIODE(SI)		1
D3-10	RLS71	DIODE(SI)		8
D11	PSVDUDZ39B	DIODE(SI)		1
D12,13	RLS71	DIODE(SI)		2
D15	RLS71	DIODE(SI)		1
D100-111	PQVDPY1204	LED	S	12
D112-117	PQVDBR1102W	LED	S	6
D130	PQVDPY1102	LED		1
		(CONNECTORS)		
CN1	PSJP03A05Z	CONNECTOR, 3P		1
CN2	PSJS36A61Z	CONNECTOR, 36P		1
CN5	PSJP04A05Z	CONNECTOR, 4P		1
CN3,4	PSJP02A05Z	CONNECTOR, 2P		2
CN6	PSJS20A74Z	CONNECTOR, 20P		1

This replacement parts list is for KX-T7533G/T7533G-B only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
		(CAPACITORS)		
C2	ECEV1HA2R2N	2.2		1
C3	PSCEV1HA010	1		1
C4	ECUV1H680JCV	68P		1
C5	ECUV1H101JCV	100P		1
C6	ECUV1H680JCV	68P		1
C7	ECUV1H101JCV	100P		1
C8,9	ECUV1H470JCV	47P		2
C10	PSCEV1EA101	100		1
C11	PQCUV1E104MD	0.1		1
C12	PSCEV1EA101	100	S	1
C13	PQCUV1E104MD	0.1		1
C14	PSCEV1HA010	1	S	1
C15,16	PSCEV0JA102	1000		2
C17	PQCUV1E104MD	0.1	S	1
C18	ECUV1H080DCV	8P		1
C19	ECUV1H470JCV	47P		1
C21,22	ECUV1H104ZFV	0.1	S	2
C23	PSCEV0JA470	47		1
C25	ECUV1H470JCV	47P		1
C26	ECUV1H080DCV	8P		1
C27	ECUV1H104ZFV	0.1	S	1
C28	PQCUV1C334ZF	0.33	S	1
C29	PSCEV0JA220	22		1
C31	PQCUV1C334ZF	0.33		1
C32	PSCEV0JA220	22		1
C33	PQCUV1E104MD	0.1		1
C34,35	PSCEV0JA470	47		2
C36	PSCEV1HA100	10		1
C37	PSCEV0JA220	22		1
C39	PSCEV0JA471	470		1
C40	PQCUV1H331JC	330P		1
C41	PQCUV1H332KB	0.0033		1
C42	PSCEV1HA010	1		1
C43	PQCUV1E104MD	0.1		1
C61	PSCEV0JA102	1000		1
C62	PQCUV1E104MD	0.1		1
C63	PSCEV1HA100	10		1
C71,72	PQCUV1E473MD	0.047	S	2
C73	PSCEV1EA4R7	4.7		1
C74	PQCUV1E104MD	0.1		1
C78,79	ECUV1E102JCV	0.001		2
C80	PSCEV1HA010	1		1
C82,83	PSCEV0JA101	100		2
C84	PSCEV0JA220	22		1
C85	PSCEV1HAR33	0.33		1
C88	PSCEV1HA100	10		1
C106,107	PSCEV0JA101	100		2
C108	PQCUV1H121JC	120P		1
C111	ECUV1H104ZFV	0.1	S	1
C115	ECUV1H104ZFV	0.1	S	1
C117,118	ECUV1H104ZFV	0.1	S	2
C119	ECUV1H104ZFV	0.1	S	1
C120	PSCEV0JA470	47		1
C122	ECUV1H391JCV	390P		1
		(JACKS)		
JK1	PSJJ1T011Z	JACK		1
JK2	PSJJ1T012Z	JACK		1
		(COIL)		
L1,2,5,9	PQLQR1LT	COIL		4
L6	PQLQR1RM601	COIL		1

Ref. No.	Part No.	Part Name & Description	Pcs
		(RERSISTORS)	
JP1	PQ4R18XJ000	0	1
JP4	PQ4R18XJ000	0	1
JP5	PQ4R18XJ000	0	1
JP8	PQ4R18XJ000	0	1
JP13,14	ERJ3GEY0R00	0	2
L7,8	PQ4R10XJ000	0	2
L10,11	ERJ3GEY0R00	0	2
L12-17	ERJ3GEYJ330	33	6
R1,2,3	ERJ3GEYJ472	4.7K	3
R4	ERJ3GEYJ330	33	1
R5	ERJ3GEYJ561	560	1
R6	ERJ3GEYJ472	4.7K	1
R7	ERJ3GEYJ330	33	1
R8,9	ERJ3GEYJ472	4.7K	2
R10-13	ERJ3GEYJ472	4.7K	4
R14	ERJ3GEYJ132	1.3K	1
R15	ERJ3GEYJ912	9.1K	1
R16	ERJ3GEYJ121	120	1
R17	ERJ3GEYJ220	22	1
R18	ERJ3GEYJ121	120	1
R19	ERJ3GEYJ220	22	1
R20	ERJ3GEYJ121	120	1
R21	ERJ3GEYJ220	22	1
R22	ERJ3GEYJ121	120	1
R23	ERJ3GEYJ220	22	1
R24	ERJ3GEYJ121	120	1
R25	ERJ3GEYJ220	22	1
R26	PQ4R18XJ100	10	1
R27	ERJ3GEYJ102	1K	1
R28	ERJ3GEYJ105	1M	1
R29	ERJ3GEYJ561	560	1
R30	ERJ3GEYJ151	150	1
R31	ERJ3GEYJ123	12K	1
R32	ERJ3EKF9102	91K	1
R34	ERJ3GEYJ105	1M	1
R35	ERJ3GEYJ822	8.2K	1
R36	ERJ3GEYJ222	2.2K	1
R38	ERJ3GEYJ222	2.2K	1
R39	ERJ3GEYJ224	220K	
R40	ERJ3GEYJ222	2.2K	1
R41	ERJ3GEYJ472	4.7K	1
R42	ERJ3GEYJ103	10K	1
R43	ERJ3GEYJ102	1K	1
R44	ERJ3GEYJ183	18K	1
R45	ERJ3GEYJ103	10K	1
R46	ERJ3GEYJ392	3.9K	1
R56	PQ4R18XJ100	10	1
R57	ERJ3GEYJ563	56K	1
R58	ERJ3GEYJ564	560K	1
R59	ERJ3GEYJ332	3.3K	1
R60	ERJ3GEYJ222	2.2K	1
R67	ERJ3GEYJ151	150	1
R68	ERJ3GEYJ222	2.2K	1
R69	PQ4R18XJ3R3	3.3	1
R83	ERJ3GEYJ104	100K	1
R84,85,86	ERJ3GEYJ103	10K	3
R87	ERJ3GEYJ104	100K	1
R88	ERJ3GEYJ333	33K	1
R89	ERJ3GEYJ223	22K	1
R90	ERJ3GEYJ183	18K	1
R91	ERJ3GEYJ103	10K	1
R92	ERJ3GEYJ105	1M	1
R93-99	ERJ3GEYJ223	22K	7
R100	ERJ3GEYJ223	22K	1
R101,102	ERJ3GEYJ472	4.7K	2
R103	ERJ3GEYJ104	100K	1
R104,105	ERJ3GEYJ472	4.7K	2
R106	ERJ3GEYJ154	150K	1
R107	ERJ3GEYJ104	100K	1
R108	ERJ3GEYJ563	56K	1
R109	ERJ3GEYJ123	12K	1

This replacement parts list is for KX-T7533G/T7533G-B only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
R110	ERJ3GEYJ223	22K		1
R112	PQ4R18XJ000	0		1
R113	ERJ3GEYJ680	68		1
R114	ERJ3GEYJ102	1K		1
R117,118	ERJ3GEYJ473	47K		2
R119	ERJ3GEY0R00	0		1
R120	ERJ3GEY0R00	0		1
R121	ERJ3GEYJ101	100		1
R123-126	ERJ3GEYJ223	22K		4
R127,128	ERJ3GEYJ102	1K		2
R129	ERJ3GEYJ473	47K		1
R130	ERJ3GEYJ182	1.8K		1
R131,132	ERJ3GEYJ330	33		2
R133	PQ4R18XJ100	10		1
R134,135	ERJ3GEYJ330	33		2
R136	ERJ3GEYJ104	100K		1
R137	ERJ3GEYJ271	270		1
R138,139	ERJ3GEYJ103	10K		2
R140	ERJ3GEYJ104	100K		1
R142,143	ERJ3GEY0R00	0		2
R144	ERJ3GEYJ330	33		1
R145-149	ERJ3GEYJ330	33		5
R150-153	ERJ3GEYJ330	33		4
		(TRANSFORMER)		
T1	PSLT9Z4A	TRANSFORMER		1
		(CRYSTAL OSCILLATOR & CERAMIC FILTER)		
X1	PSVCCR1638B7	CRYSTAL OSCILLATOR		1
X2	PSVCCR1228B7	CRYSTAL OSCILLATOR		1
X3	PQVBTCS4.00M	CERAMIC FILTER		1
		LCD BOARD PARTS		
PCB2	PSWP2T7533G	LCD BOARD ASS'Y (RTL)		1
		(ICs)		
IC201	PQVILC7931D	IC		1
IC202	PSVI44780B24	IC		1
		(DIODE)		
D201	PSVD111R820R	DIODE(SI)	S	1
		(CONNECTOR)		
CN201	PSJS36A61Z	CONNECTOR, 36P		1
		(CAPACITORS)		
C200	PQCUV1E104MD	0.1	S	1
		(RESISTORS)		
R201-205	PQ4R10XJ222	2.2K		5
R206	PQ4R10XJ104	100K		1
		(OTHERS)		
E1	EDD104U32AAG	LIQUID CRYSTAL DISPLAY		1
E2	PSSE1011Z	CONNECTOR		2
E3	PSHR1132Z	GUIDE		1

Ref. No.	Part No.	Part Name & Description	Pcs
		SWITCH BOARD PARTS	
PCB3	PSWP3T7531G	SWITCH BOARD ASS'Y (RTL)	1
		(SWITCH)	
SW301	PSSRCA102Z	SWITCH	1
		(CONNECTOR)	
CN301	PSJS03Q36Z	CONNECTOR, 3P	1

!, (Q) KXT753 G/G-B
Printed in Japan
IT

ORDER NO. KMS9901550S2

Service Manual

Supplement-1

DIGITAL PROPRIETARY TELEPHONE
FOR DIGITAL SUPER HYBRID SYSTEM

9611 #2014134

KX-T7533G, KX-T7533G-B

9562 #2016111 White Version

KX-T7536G, KX-T7536G-B

Black Version

Please file and use this supplement manual together with the service manual for Model No.KX-T7533G/KX-T7533G-B Order No.KMS9808296C2 and KX-T7536G/KX-T7536G-B, Order No.KMS9808297C2.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians.
Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

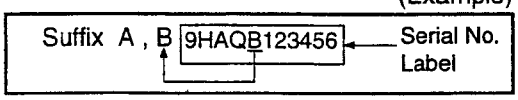
CHANGES

Subject:

Suffix	Reason for suffix change
A → B	Improvement for the performonce.

Location of suffix:

(Example)



Panasonic

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■ REPLACEMENT PARTS LIST ..... Change from the original pages 43-45. (KX-T7533G/KX-T7533G-B)
Change from the original pages 45-46. (KX-T7536G/KX-T7536G-B)

Reason for Change	Following 1-8 reasons are indicated on the Notes in the bottom column.
1. Improve performance	**Note:**
2. Change of material or dimension	1.Part with mark ※1 has been seen in the original page 34 or 36, section 7/G and page 39 or 41, section 9/B or 11/B.
3. To meet approved specification	
4. Standardization	
5. Addition	
6. Deletion	
7. Correction	
8. Other	

Interchangeability Code Following V-Z interchangeabilities are indicated on the Notes in the bottom column.

	Parts	Set Production	Description
V	Original / New	Early (before change) / Late (after change)	Original or new parts may be used in early or late production sets. Use original parts until exhausted, then stock new parts.
W	Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
X	Original / New	Early (before change) / Late (after change)	New parts only may be used in early or late production sets. Stock new parts.
Y	Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
Z	Other		

Ref. No.	Part No.		Part Name & Description	Pcs	Remarks	Notes		Time of change (Suffix)
	Original Part	**New Part**						
ACCESSORIES AND PACKING MATERIALS								
A4	PSGD1041Z	**PSGD1041Y**	CARD, OVERLAY	1		1	X	
MAIN BOARD PARTS								
C121	----------	**PQCUV1C224KB**	CAPACITOR, 0.22µF	1	※1	5		
R5	ERJ3GEYJ561	**ERJ3GEJ471**	RESISTOR, 470Ω	1		1	X	B
R14	ERJ3GEYJ912	**ERJ3GEJ682**	RESISTOR, 6.8kΩ	1		1	X	B
R16	ERJ3GEYJ121	**ERJ3GEJ221**	RESISTOR, 220Ω	1		1	X	B
R17	ERJ3GEYJ220	**ERJ3GEJ820**	RESISTOR, 82Ω	1		1	X	B
R18	ERJ3GEYJ121	**ERJ3GEJ221**	RESISTOR, 220Ω	1		1	X	B
R19	ERJ3GEYJ220	**ERJ3GEJ820**	RESISTOR, 82Ω	1		1	X	B
R20	ERJ3GEYJ121	**ERJ3GEJ221**	RESISTOR, 220Ω	1		1	X	B
R21	ERJ3GEYJ220	**ERJ3GEJ820**	RESISTOR, 82Ω	1		1	X	B
R22	ERJ3GEYJ121	**ERJ3GEJ221**	RESISTOR, 220Ω	1		1	X	B
R23	ERJ3GEYJ220	**ERJ3GEJ820**	RESISTOR, 82Ω	1		1	X	B
R24	ERJ3GEYJ121	**ERJ3GEJ221**	RESISTOR, 220Ω	1		1	X	B
R25	ERJ3GEYJ220	**ERJ3GEJ820**	RESISTOR, 82Ω	1		1	X	B
R56	PQ4R18XJ100	**PQ4R18XJ390**	RESISTOR, 39Ω	1		1	X	B
LCD BOARD PARTS								
IC201	PQVILC7931D	**PSVILC7931D**	IC (KX-7533G/T7533G-B olny)	1		7		

Reason for Change
Interchangeability Code

N.T.(Q)
KXT7533□/G-B
KXT7536□/G-B
Printed in Japan

ORDER NO. KMS9906413S2

Service Manual

Supplement-2

DIGITAL PROPRIETARY TELEPHONE
FOR DIGITAL SUPER HYBRID SYSTEM

KX-T7531G, KX-T7531G-B
KX-T7533G, KX-T7533G-B
KX-T7536G, KX-T7536G-B

White Version　　Black Version

Please file and use this supplement manual together with the Service Manual Model is mentioned below.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians.
Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Model	Order No.
KX-T7531G/T7531G-B	KMS9808295C2
KX-T7533G/T7533G-B	KMS9808296C2
KX-T7536G/T7536G-B	KMS9808297C2

9563 1138/13/4
9611 2/14/19/4
9562 2/16/11/1

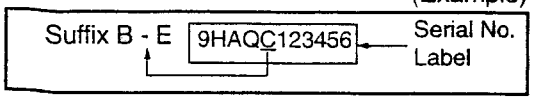
CHANGES

Subject:

Model	Suffix	Reason for suffix change
KX-T7531G/G-B	C → D	Improvement of performance. (change of the IC)
	D → E	Addition of the spacer in the lower cabinet.
KX-T7533G/G-B	B → C	Addition of the spacer in the lower cabinet.
	C → D	Improvement of performance. (change of the IC)
KX-T7536G/G-B	B → C	Addition of the spacer in the lower cabinet.
	C → D	Improvement of the performance. (change of the IC)

Location of suffix:

(Example)



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■ REPLACEMENT PARTS LIST

Reason for Change	Following 1-8 reasons are indicated on the Notes in the bottom column.
1. Improve performance 2. Change of material or dimension 3. To meet approved specification 4. Standardization 5. Addition 6. Deletion 7. Correction 8. Other	**Note:** Part with mark *1 has been changed at the same time.

Interchangeability Code Following V-Z interchangeabilities are indicated on the Notes in the bottom column.

Parts	Set Production	Description
V	Original / New → Early (before change) / Late (after change)	Original or new parts may be used in early or late production sets. Use original parts until exhausted, then stock new parts.
W	Original → Early (before change); New → Late (after change)	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
X	Original → Early (before change); New → Late (after change)	New parts only may be used in early or late production sets. Stock new parts.
Y	Original → Early (before change); New → Late (after change)	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
Z	Other	

● KX-T7531G, KX-T7531G-B

Ref. No.	Part No.		Part Name & Description	Pcs	Remarks	Notes		Time of change (Suffix)
	Original Part	**New Part**						
CABINET AND ELECTRICAL PARTS								
20	PSSX1010Z	**PSSX1010Y**	KEY SWITCH	1		1	X	
32	PSKF1031Y1	**PSKF1031S1**	CABINET, LOWER (KX-T7531G)	1	*1	1	X	
32	PSKF1031Y2	**PSKF1031S2**	CABINET, LOWER (KX-T7531G-B)	1	*1	1	X	
	----------	**PSHX1154Z**	SPACER	1		5		E
	PSHX1154Z	————	SPACER	0	*1	6		
MAIN BOARD PARTS								
IC7	PSVI4668A07H	**PSVI4668A17H**	IC	1		1	X	D
C39	PSCEV0JA470	**PSCEV1HA4R7**	CAPACITOR, 4.7µF	1		1	X	
C106	PQCUV1H152KB	————	CAPACITOR, 0.0015µF	0		6		
R118	ERJ3GEYJ103	————	RESISTOR, 10kΩ	0		6		

Reason for Change
Interchangeability Code

● KX-T7533G, KX-T7533G-B

Ref. No.	Part No.		Part Name & Description	Pcs	Remarks	Notes		Time of change (Suffix)
	Original Part	**New Part**						
CABINET AND ELECTRICAL PARTS								
20	PSSX1010Z	**PSSX1010Y**	KEY SWITCH	1		1	X	
32	PSKF1031Z1	**PSKF1031T1**	CABINET, LOWER (KX-T7533G)	1	*1	1	X	
32	PSKF1031Z2	**PSKF1031T2**	CABINET, LOWER (KX-T7533G-B)	1	*1	1	X	
	----------	**PSHX1154Z**	SPACER	1		5		C
	PSHX1154Z	----------	SPACER	0	*1	6		
MAIN BOARD PARTS								
IC6	PSVI40612A04	**PSVI40612A18**	IC S	1		1	X	D

● KX-T7536G, KX-T7536G-B

Ref. No.	Part No.		Part Name & Description	Pcs	Remarks	Notes		Time of change (Suffix)
	Original Part	**New Part**						
CABINET AND ELECTRICAL PARTS								
20	PSSX1010Z	**PSSX1010Y**	KEY SWITCH	1		1	X	
32	PSKF1031Z1	**PSKF1031T1**	CABINET, LOWER (KX-T7536G)	1	*1	1	X	
32	PSKF1031Z2	**PSKF1031T2**	CABINET, LOWER (KX-T7536G-B)	1	*1	1	X	
	----------	**PSHX1154Z**	SPACER	1		5		C
	PSHX1154Z	----------	SPACER	0	*1	6		
MAIN BOARD PARTS								
IC6	PSVI40612A04	**PSVI40612A18**	IC S	1		1	X	D

Reason for Change
Interchangeability Code

N.T.(Q)
KXT7531G/G-B
KXT7533G/G-B
KXT7536G/G-B
Printed in Japan

20/4/94

9677

ORDER NO. KMS0003615S2

Service Manual

DIGITAL PROPRIETARY TELEPHONE

Supplement-3

KX-T7533G
KX-T7533G-B

Please file and use this supplement manual together with the service manual for Model No. KX-T7533G and KX-T7533G-B Order No.KMS9808296C2.

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Panasonic

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1 CHANGES

1.1. REPLACEMENT PARTS LIST

Reason for Change (Symbol:A) Following 1-8 reasons are indicated on the Notes in the bottom column.	
1. Improve performance 2. Change of material or dimension 3. To meet approved specification 4. Standardization 5. Addition 6. Deletion 7. Correction 8. Other	**Note** Mark *1 has been changed at the same time.

Interchangeability code (Symbol:B) Following V-Z interchangeabilities are indicated on the Notes in the bottom column.		
Parts	Set Production	Description
V Original / New	Early (before change) / Late (after change)	Original or new parts may be used in early or late production sets. Use original parts until exhausted, then stock new parts.
W Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
X Original / New	Early (before change) / Late (after change)	New parts only may be used in early or late production sets. Stock new parts.
Y Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
Z Other		

Ref. No.	Parts No.		Part Name & description	Pcs	Remarks	Notes		Time of change (Suffix)
	Original Part	**New part**						
CABINET AND ELECTRICAL PARTS								
9	PSBH1002Z1	**PSBH1002Y1**	BUTTON, HOOK (KX-T7533G)	1	*1	4	X	
9	PSBH1002Z2	**PSBH1002Y2**	BUTTON, HOOK (KX-T7533G-B)	1		4	X	
15	PSHK1133Z	----------	COVER (KX-T7533G only)	0	*1	6		
ACCESSORIES AND PACKING MATERIALS								
A5	PSQX1552Y	**PSQX1552X**	INSTRUCTION BOOK	1		1	X	

N.T.(Q)
KXT7533G/KXT7533GB
Printed in Japan